FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

JANUARY, 1957

New York's greatest spectacular fire fighting force in control of fatal Brooklyn pier blaze

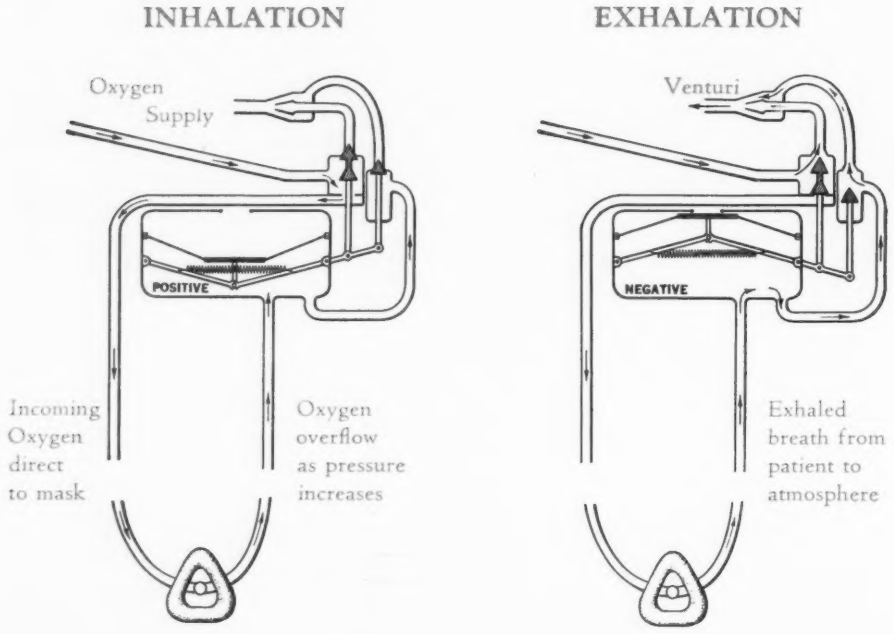
IN THIS ISSUE...

Death and Destruction Wholesale in New York's Worst Pier Fire

Airborne Chemical Attack on Brush and Forest Fires Pays Off

More Effective Fire Hose Recoupling

EMERSON Resuscitators



The flow of oxygen to the patient (left) in a standard portable model Emerson Resuscitator and the flow of exhaled breath (right) are shown diagrammatically above. Note the pattern of flow as controlled by the 3 valves. Oxygen coming to the patient never passes through any part of the mechanism that has carried exhaled breath. (There is back-and-forth breathing through the mask and mask-head, but these and the hoses are easily washable.)

If you happen to treat a patient who exhales disease germs, you can be sure that they will not be picked up in the mechanism by the in-flowing oxygen and carried to the next patient. Oxygen for the patient does not pass through the mechanism or the venturi.

This unique feature of Emerson Resuscitators is covered by U. S. Patent No. 2268172 and Canadian Patent No. 405705. Perhaps such cleanness is only occasionally of life-saving importance; but it is one reason why Emersons are known far and wide as the

"Simplest and Safest!"

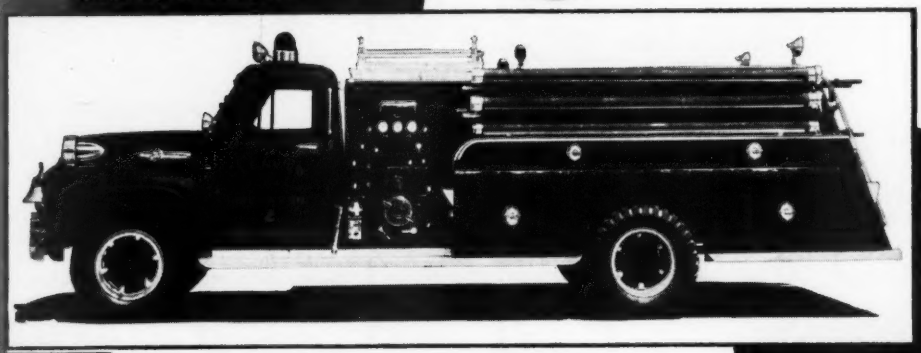
SIMPLE TO OPERATE — ECONOMICAL OF OXYGEN — VEPSATILE — RUGGED

Made by the makers of Emerson Iron Lungs and other medical breathing equipment

J. H. EMERSON COMPANY
22 COTTAGE PARK AVENUE, CAMBRIDGE 40, MASSACHUSETTS, U. S. A.

TOUCH and GO!

Fire Fighter Truck Company, Rock Island, Illinois deluxe equipment with a Champion 500 G.P.M. three stage centrifugal fire pump, 1000 gallons booster tank, enclosed side compartments, enclosed, heated booster reels, FEDERAL Q2 vehicle siren, FEDERAL No. 17 Beacon Ray red warning light.



That's all it takes to let your new apparatus roll,
No more harnessing;
no old-time hand cranking of balky engines.
You are on your way — surely and instantly!

Your problems and delays now begin —
after you are out of the house.
Dense traffic,
parked vehicles and inept car drivers
offset your starting advantages.

In one sense, going through modern traffic hazards
is a "touch and go" proposition,
but to use that old expression in a new way, you can get
"Touch"
and
"Go"
response with modern vehicle signals.

Touch the switch and your Beacon Ray identifies
and protects your apparatus
with its twin 360° beams of red light.
Touch the foot switch
and your Federal Coaster siren roars
its instant and sustained call for "right of way."
By the blind or deaf you are seen and heard.
You can GO!

Smart firefighters know this.
Apparatus manufacturers recommend it.
And shrewd truck buyers specify
a Beacon Ray and a Federal Q or C coaster siren
as a prime essential part of new equipment.

Team a Federal Coaster and Beacon Ray
for better and quicker runs with your old appartus.
Specify that combination on your new trucks
to give you the maximum advantage.

Ask for catalog #300 today.

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FIRE ENGINEERING

VOL. 110 JANUARY, 1957 NO. 1

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Eighty Years Young!

As we begin our 80th year of publishing FIRE ENGINEERING, we cannot help but measure its progress through the years with that of the fire service in the vast and intricate business of fire protection and prevention.

It is gratifying to note that during those 80 busy years, FIRE ENGINEERING has not only recorded the forward progress in fire fighting, but has played a stellar role in that dramatic progress. Actually, it has pioneered and promoted every new idea, policy and product that would make for more efficient fire suppression and that would make the job of the fire fighter safer, more secure and more productive.

That this publishing policy which has endured for generations is sound, is indicated by the accounting of FIRE ENGINEERING's progress in readership — the number and importance of its reader-clientele; by its advertisers, and the consistency with which they employ this journal to tell the story year after year of their products and policies to that reader family.

To those readers and advertisers who have marked and sparked the progress of this journal through the years, our deep gratitude and our promise that notwithstanding FIRE ENGINEERING's ripe old age, there will be no lessening in the vitality and vigor of its publishing policies. Just the reverse, in fact. During 1957 and in the years ahead, FIRE ENGINEERING will continue to merit to fullest degree, the slogan that has appeared on its masthead for generations: "The Journal of the Fire Protection Profession since 1877."

The Publishers

FIRE ENGINEERING —A CONSOLIDATION OF FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION AND FIRE SERVICE

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FABRILON

WITH

DOUBLE-SURFACE JACKETS

DOUBLE-SURFACE MEANS DOUBLE-SERVICE

This is a magnified cross-section cut length wise through a FABRILON hose jacket. The cabled warp strands are shown closely interwoven with FABRILON filler cords in FABRIC's exclusive *twill woven* construction.

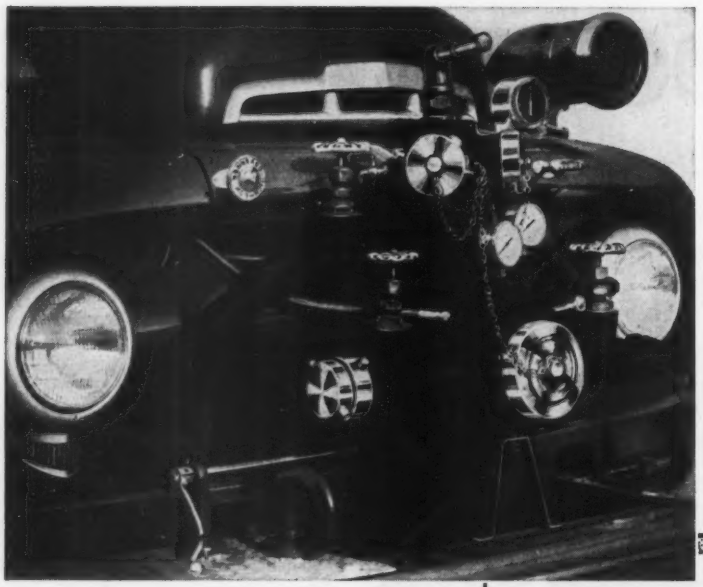
For every stitch that is inside there are *two* on the outside, which means that *twice* as much material is on the *outside* of the jacket, producing a smooth, *double-wearing* surface attained only in our *twill woven* FABRIC jackets.

FABRIC FIRE HOSE COMPANY

THE ONLY EXCLUSIVE MANUFACTURER OF FIRE HOSE IN AMERICA

SANDY HOOK CONNECTICUT

FROST-PROOF DESIGN



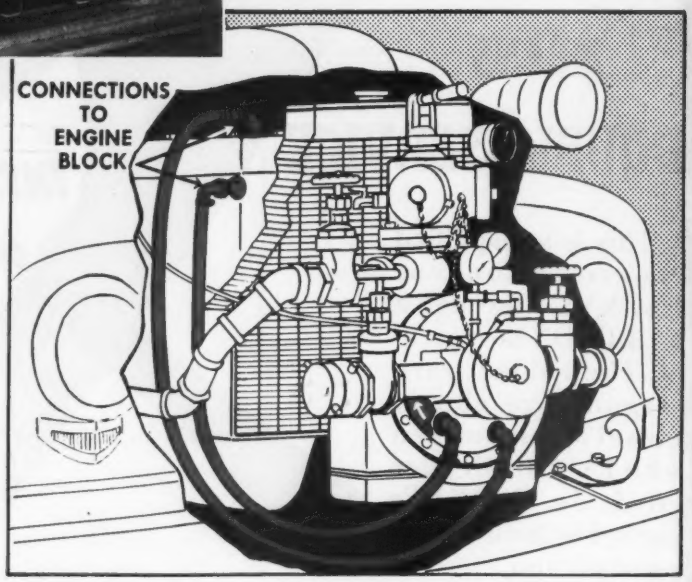
of Barton-American Type UA Front Mounted Fire Pump gives extra safety factor for winter operation

You *never* have to worry about your Barton-American Type UA Pump freezing! For this unique, effective *frost-proof design* gives you positive operation even in the coldest weather!

Water at engine temperature constantly circulates from engine cooling system through the cored suction head of the UA Pump. Even at sub-zero temperatures, this always keeps the pump well above the freezing point.

It's a closed system with no possible loss of radiator water or anti-freeze . . . operating on the same principle as a car heater.

In addition this feature of the UA Pump increases the summer cooling capacity of the system . . . gives you a cooler engine in hot weather as well as positive protection against freezing in cold weather!



Hose line circuit may vary with make of engine.

ONLY THE BARTON-AMERICAN TYPE UA PUMP GIVES YOU ALL THESE VALUABLE FEATURES:

- Is Easy to Install
- Fights Fires on the Move
- Gives Pressures to 400 lbs.
- Better Weight Distribution on Truck
- Gives You Unusual Economy
- Lets You Carry More Water or Equipment
- Effective Frost-Proof Design
- Both Volume and High-Pressure Fog Stream
- Positive Non-Slip Clutch

WRITE TODAY FOR UA PUMP BULLETIN NO. 8330-B

AMERICAN-MARSH PUMPS

BATTLE CREEK MICHIGAN

In Canada:
American-Marsh Pumps (Canada) Ltd., Stratford, Ont.

B.F.Goodrich

B. F. Goodrich hose handles easier, gets into action faster

THE amazing light weight and flexibility of B. F. Goodrich Fire King hose makes it a favorite with firemen everywhere. The chief in Natchez, Miss., where this picture was taken, says, "Our men compete with each other to see who is going to work on the truck that has the Fire King hose —they say it handles so much easier than other hose."

B. F. Goodrich Fire King is 22% lighter than ordinary hose, and 50% stronger. It is tested to 600 pounds pressure to handle increased pumping pressures and to resist sudden pump surges. Fire King is made with Dacron chemically-produced fiber as "filler cords".

And now, for only pennies more per foot, you can add a *new* factor in safety and long life. The new Superseal protection, introduced by B. F. Goodrich in 1955, has virtually eliminated mildew as a hose killer. Exacting tests prove that it makes fire hose 10 times more resistant to mildew and rotting. Unlike ordinary treatments that just coat the surface of hose, the Superseal solution penetrates every cord in both the inner and outer jacket.

When you want hose that will last longer than any fire hose ever sold, get B. F. Goodrich Fire King with Superseal protection. Your B. F. Goodrich fire hose distributor can tell you more about it, or write *B. F. Goodrich Industrial Products Company, Dept. M-844, Akron 18, Ohio.*

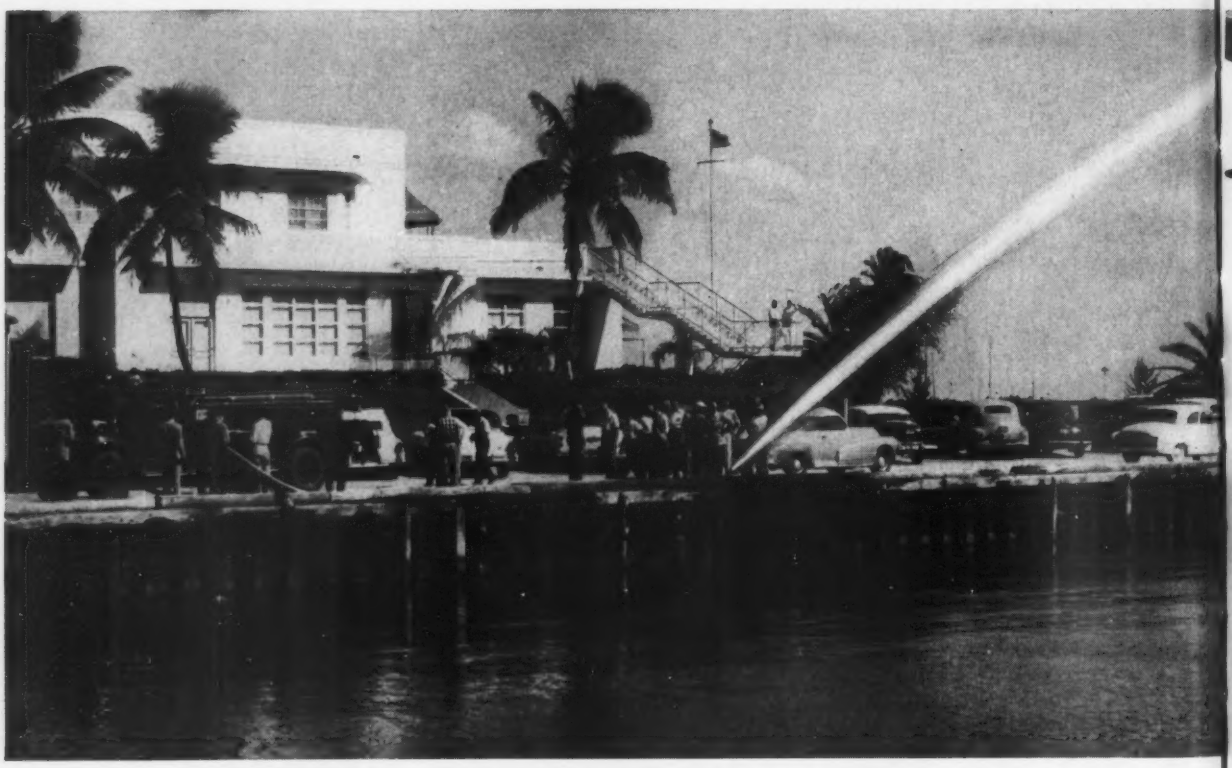
B.F.Goodrich

INDUSTRIAL PRODUCTS

TORQUE CONVERTER another MACK first in

Here's the first true fire apparatus with torque converter drive—Mack's new 750 gpm triple combination pumper. Competitively priced to meet the budget of most communities, this new pumper has been fully approved by The National Board of Fire Underwriters.

With a pumping capacity that far exceeds its rated 750 gpm, this new pumper stands alone as the ultimate in up-to-date design . . . furnishing a new ease and certainty of control that's backed with the matchless performance and dependability expected from Mack-built apparatus. Let your Mack representative give you the full story today. Mack Fire Apparatus, Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.



Mack's new pumper in action at the International Association of Fire Chiefs Convention held in November at Miami. Months of hard work and exhaustive testing on this new pumper were well rewarded by an enthusiastic reception at this first public showing.

COMPLETE LINE OF PUMPERS—500 to 1250 GPM . . . SQUAD AND HOSE WAGONS . . . 65', 75', 85' AERIALS . . . COMBINATION LADDER TRUCKS

TRANSMISSION . . .
fire apparatus

✻ *Faster running time*

Rapid acceleration and quick stop-and-go driving without shifting means less running time between station and call...especially in congested urban areas.

✻ *Easier to drive*

"Brake and gas pedal" operation makes driving easier, safer, and more efficient for fire apparatus —just like the family car. Now, for the first time, this facility is available to firefighters—on Mack apparatus.

✻ *Reduced maintenance*

With a torque converter, the no-load to load transition on the engine is smoothly integrated. This means less wear and tear on engine and drive components . . . lower maintenance costs.

✻ *Less driver training*

Simpler operation requires less driver training . . no need for driver familiarization with different shifting patterns . . . makes driving safer for new men . . . eliminates the costly possibility of inexperienced drivers burning out clutches or stripping transmissions.

✻ *New operating efficiency*

Absence of the clutch pedal and shift lever heralds new operating efficiency for modern firefighters. Torque converter, replacing conventional clutch, multiplies torque to the rear wheels by a 2.1 to 1 ratio in either low or high range with full engine power available at all times.

MACK *first name for* Fire Apparatus

IN COLUMBUS, O., the stronger hose made with "Dacron" is preferred because it needs less maintenance.

IN MIAMI, FLA., "Dacron" is specified as filler cord because it resists weakening by mildew . . . a real problem in semitropic climates.

IN AUGUSTA, GA., hose made with "Dacron" is used "because it's easier to coil and rack . . . dries faster, too."

SCHENECTADY, N.Y., Fire Department averages two calls per day . . . reports, "Hose made with 'Dacron' gives better all-around performance."

Schenectady Fire Department reports:

"Hose made with DACRON is lightweight...gets into action fast"

REG. U. S. PAT. OFF.

The Schenectady Fire Department uses 5,000 feet of hose made with "Dacron"*. Like other fire chiefs across the country, Chief Edward M. Moffett reports better all-around performance from fire hose made with "Dacron" polyester fiber. Used as the load-carrying "filler" cord that reinforces the hose, this Du Pont fiber permits a hose that's light and flexible—yet *stronger* than ordinary hose of the same construction.

Du Pont makes "Dacron" and supplies the yarn to hose manufacturers. The combination of the unusual properties of "Dacron" plus hose manufacturers' skill has resulted in a superior fire hose. Hose made with "Dacron" is made by all leading fire-hose manufacturers. The next time *you* need hose, be sure it's made with "Dacron". E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

**"Dacron" is Du Pont's registered trademark for its polyester fiber.*

ADVANTAGES OF FIRE HOSE MADE WITH "DACRON":

- Lighter
- Stronger
- Dries faster
- More flexible
- Cuts loading time
- Saves space

For Better All-Around Performance Specify Hose Made with "Dacron"

POLYESTER FIBER

DU PONT

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BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Nuclear energy takes over the fire watch...

Nuclear Energy Sounds the Alarm . . .

Precious Minutes Earlier

PYR-A-LARM In a matter of minutes the invisible beginnings of combustion can burst into flame and reach the proportions of a dangerous, destructive fire. Conventional thermal devices are powerless to detect fires in their real incipiency or those which smolder without creating great heat. Precious minutes are lost while heat and flames build up. Now nuclear research, by saving those vital minutes for the fire fighter, safeguards precious lives and property. PYR-A-LARM, the nuclear energized pre-detector, can give warning the moment combustion starts because PYR-A-LARM is sensitive to the invisible, air borne products of combustion.

Each PYR-A-LARM detector head contains an outer or detecting chamber, an inner or reference chamber and a cold cathode tube. The air in both chambers is made conductive by special radium foils. As products of combustion enter the detector chamber, they upset the balance between the two chambers triggering the cold cathode tube. The tube in turn relays the signal to control cabinets which are designed to actuate audible and visible alarms, release extinguishing systems, shut down equipment and perform other functions.

Approved by Underwriters Laboratories Inc. and Factory Mutual Laboratories.

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A DIVISION OF BAKER INDUSTRIES, INC.

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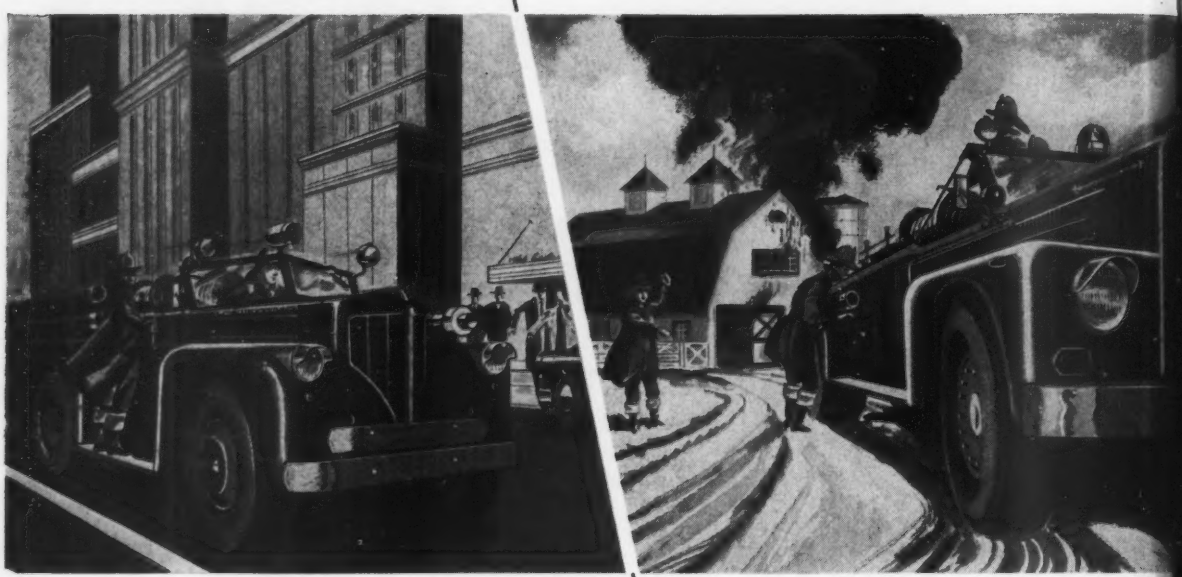
PYROTRONICS, Post Office Box 390, Newark, N. J. 1-57

☐ Kindly send literature describing PYR-A-LARM.
☐ Please contact me to arrange a demonstration in my office.

NAME.....
NAME OF PLANT.....
ADDRESS.....
CITY.....STATE.....

for power to spare
on the way... at the fire...



Specify Leece-Neville
ALTERNATOR SYSTEMS!

Two-way radios, sirens, warning lights, rescue equipment—all combine to place a heavy load on your apparatus batteries. More of a load than the batteries can handle—*unless* you've installed Leece-Neville alternator systems!

Because they produce charging current *as soon as the engine starts*...enough to handle two-way radio transmitting loads...Leece-Neville alternators keep batteries charged . . . ready for fast, sure emergency starts in coldest weather!

And, high speeds can't damage L-N alternators ...they're designed for operation up to 12,000 rpm! What's more, L-N constant voltage level control assures peak radio performance . . . lengthens life of radio components.

Leece-Neville alternators, the original ac-dc generating system, have been used since 1946 as standard generating equipment on hundreds of fire apparatus fleets, both large city and rural volunteer departments. On any type of apparatus, large or small, L-N alternators will set new standards of performance while reducing operating and maintenance expense. For all the facts, see your local L-N distributor or write direct to The Leece-Neville Company, Cleveland 3, Ohio. *Distributors in principal cities . . . service stations everywhere.*

plenty of 110 volt power, too!

For abundant 110 volt power to operate floodlights, power tools, rescue equipment, etc., install a Leece-Neville 110 volt transformer and rectifier in conjunction with the alternator. Ask for special bulletin.

AA-4295

YOU CAN RELY ON Leece-Neville

Automotive Electrical Equipment Since 1909

TRUCK • BUS • DIESEL • INDUSTRIAL • PASSENGER • RAILROAD • MARINE • OFF-HIGHWAY

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WALTER

PIRSCH

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these leading fire apparatus manufacturers install

Leece-Neville

as original equipment!

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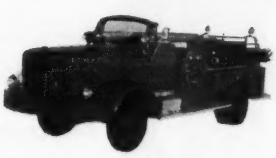
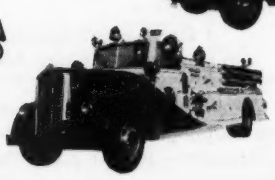


Mack TRUCKS

OREN

Ahrens-Fox

WARD LaFRANCE



LA-4104

LEECE-NEVILLE EQUIPMENT IS USED ON EVERY MAJOR TYPE OF APPARATUS!

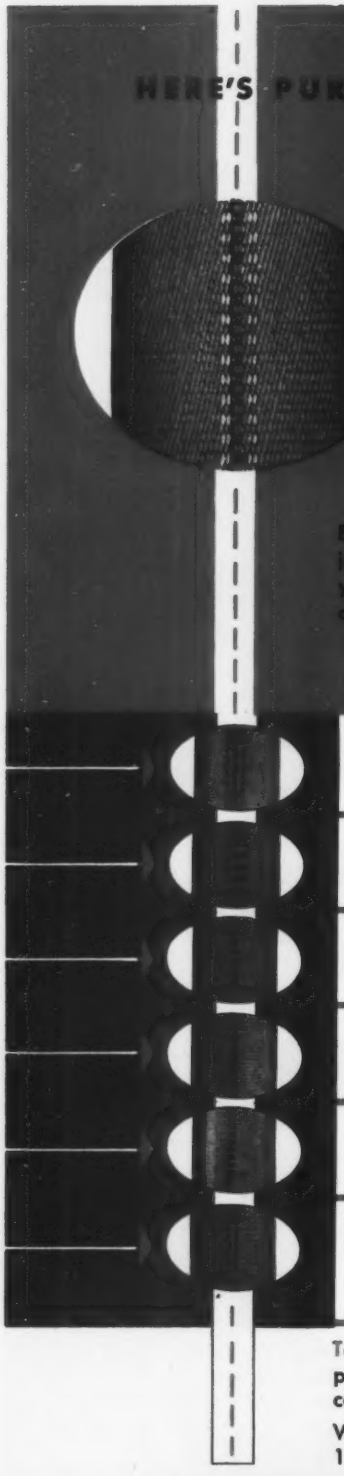
PUMPERS • QUADS • AERIAL LADDERS • HOSE WAGONS • SQUAD TRUCKS • RESCUE TRUCKS • AIRPORT CRASH TRUCKS • FOAM TRUCKS EMERGENCY CARS • AND MANY OTHERS

HERE'S PURCHASING PROTECTION FOR YOU...

AMERICAN'S IDENTIFYING STRIPE

Tells you instantly what brand and construction you're getting!

Each AMERICAN brand fire hose has its own identifying stripe woven into the jacket. The pattern and colors of this stripe enable you to tell immediately whether you receive the hose you order... also enable you to identify your hose at mutual-aid fires. Here's what these stripes tell you—



Stripe Pattern	AMERICAN Brand	Construction
Red, blue, red	American Heavy-Duty High Test	Heavy-duty cotton-synthetic jacket
Green, red, green	American Medium-Weight High Test	Medium-weight cotton-synthetic jacket
Red, green, red	American Light-weight Extra Flexible	Lightweight cotton-synthetic jacket
Blue & red with white	Crackerjack	Heavy-duty cotton jacket
Black, red, black	Municipal	Medium-weight cotton jacket
Green & red with white	Tiger	Lightweight cotton jacket

Or your own special identifying stripe can be woven into any AMERICAN hose you order

Test report, too — Each 50-foot length of AMERICAN Municipal fire hose is factory proof tested, with couplings on, for burst strength, stretch and twist. Test report accompanies each shipment — further proof that you're getting what you order.

Why take a chance on unidentified warehouse stock? Specify AMERICAN — since 1907 the hose with the helpful identifying stripe and test report.

AR-29

THE American RUBBER MANUFACTURING CO.

Factory & General Offices: • 1145 Park Avenue • Oakland 8, California • Phone OLympic 2-0800

SEATTLE • PORTLAND • SAN FRANCISCO • LOS ANGELES • BOISE • ST. LOUIS • SALT LAKE CITY

TRAGEDY COMES TO LEXINGTON. This tank truck jackknifed, tipped over on its side and traveled about 100 feet in that position. Sparks showered up from beneath the truck and it ignited. The driver was killed.

Rockwood FOAM controls tank truck fire in minutes!

Here is the true story from the pages of the Boston Globe and eye-witnesses

It was Thursday, March 17, 1955, 9:30 a.m. A tank truck was stopping at a traffic light on the Concord Turnpike in Lexington, Massachusetts. Suddenly, it jackknifed. There was a puff of smoke, and then flames. The driver was hurled onto the roadway. His clothes were aflame and he collapsed. Onlookers said flames reached 200 feet in the air.

Minutes later, in answer to a telephone alarm, Engine 2 of the East Lexington Station was on the scene. Flames whipped by winds and fed by several thousand gallons of gasoline were sweeping across the road and scorching the surrounding trees. Black smoke billowed into the air.

Roy A. Cook, Chief Engineer of the East Lexington Station, ordered Engine 2, which carries 500 gallons of water, to hold back the flames until Engine 1, carrying Rockwood FOAM, could be put into action.

Soon Engine 1, equipped with a 1½" Rockwood FOAM eductor plus the new type SG-60 FOAM nozzle with adapter for straight stream and FogFOAM, was at the scene. *With this Rockwood equipment and FOAM, Engine 1 brought the fire under control.*

Does your city have this protection? With ever-increasing traffic, more filling stations and more tank trucks on the road, the frequency of gasoline fires is on the increase.

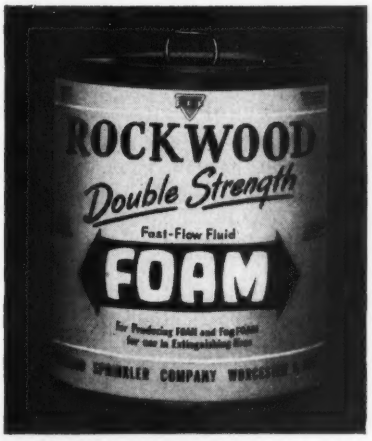
When tragedy came to Lexington, headlines told a grim story. But a major catastrophe was prevented because the East Lexington Station was prepared with Rockwood products.

Be prepared. Put this great fire fighter to work for you. Specify Rockwood Automatic FOAM Proportioning Systems, Rockwood FogFOAM nozzles and FOAM liquid when you order a fire truck.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

Distributors in all principal cities



ROCKWOOD DOUBLE-STRENGTH FOAM LIQUID, 3 parts mixed with 97 parts water, forms a solid FOAM blanket that quickly re-seals itself. Available in 5 gallon drums.

SEND FOR THIS INFORMATIVE BOOKLET

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
1548 Harlow Street
Worcester 5, Mass.

Please send me your illustrated booklet on Rockwood fire fighting products.

Name.....
Title.....
Company.....
Street.....
City.....*Zone*....*State*.....

A Recent Delivery to Panama

Fire Dept. Officials of discerning judgment select Darley Fire Apparatus for they know Darley gives greater value, because—

We manufacture BOTH Champion Fire Pumps and Champion Fire Apparatus—engineering design, workmanship, materials are to highest standards—top performance is assured through long years of faithful service.

And only Darley gives you a lifetime pump guarantee.

FIVE PUMPERS

The five Darley Champions shown are equipped with 500 gallon Champion Centrifugal Pumps, 200 gallon booster tanks, roomy compartments for equipment, roof ladders, suction hose and the usual fire fighting accessories and tools.

Designed right and built right for dependable performance and long years of service.

65 FOOT AERIAL

Full powered, easy to operate, convenient to maneuver.

A highly efficient fire fighting unit for rescue operations and watertower service.

Full complement of ground ladders including 2 section, roof and pompier ladders, total 402 feet.

Roomy compartments for equipment.

In the market for Fire Apparatus? Write us for the best values.

W. S. DARLEY & CO., Chicago 12

Factories — Chicago and Chippewa Falls, Wis.

Chief POWHATAN'S *NEW*

DURA-FOG NOZZLE*

- ***A Strong Husky Nozzle***
- ***Maintenance Free***
- ***Greater Reach***
- ***Finer Dispersion***
- ***Denser Curtain***
- ***Each Nozzle Sold Has A 100% Performance Test***

* *So Called Because of its Durability*

Rubber bumper for protection and non-slip grip. "Clicks" into straight stream or desired fog pattern. Stream can be selected by sight or touch. Floating gland type shut off. Shock absorbant shut off mechanism. Sure grip base and sturdy handle.

Over a million shut-offs WITH NO LEAK

Dura-Fog Nozzles have been thoroughly bench tested, to assure dependability. We strived for 250,000 shut-offs, actually tests have gone over a million with no leak!

PERFORMANCE DATA 1-1/2" SIZE

	STRAIGHT STREAM		30° FOG PATTERN		60° FOG PATTERN		90° FOG PATTERN	
NOZZLE PRESSURE	GPM	REACH	GPM	REACH	GPM	REACH	GPM	REACH
100 PSI	57	85′	60	40′	65	30′	72	20′
125 PSI	62	105′	65	43′	68	35′	75	22′

We have been manufacturing fire protection items for the past 64 years. If you do not have one, write for our catalog "A" which shows Powhatan's complete line.

POWHATAN

BRASS AND IRON WORKS

RANSON, WEST VIRGINIA

Now hear your 2-Way **RADIO CALLS** at Home or in your Car

The VOLUNTEER is specially designed to receive the 2-way signals on FM radio systems normally used by police and fire departments, civil defense organizations, utilities, forestry services as well as taxicabs, trucks and ambulances. The VOLUNTEER is so small that it mounts practically out of sight under a car dash yet packs more power than sets costing several times as much.

Car installation can be made in a few minutes and at low cost. Your regular auto radio antenna is used. Home sets merely plug-in like any radio.

THE VOLUNTEER is Quality and Precision Built Throughout

The impressive list of features proves that the VOLUNTEER is in a class of its own. Only the long experienced designers and builders of the famous PAK-FONE 2-way Portable, so widely used in municipal, government and industrial service, could offer so much value.

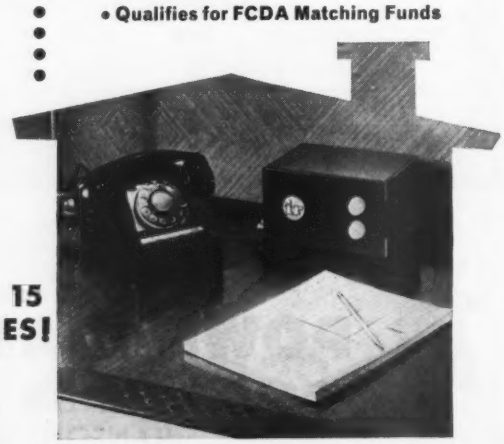
For complete information, contact your local 2-way radio service organization or write for literature.

Only

$99.00

Less Crystal

- **Extremely Compact (only 4 x 6 x 8 inches**
- **Low Battery Drain (car models)**
- **Transistor Power Amplifier (car models)**
- **15 Tubes (in AC High Band Models)**
- **Electronic Squelch Circuit**
- **Crystal Controlled (will not drift off station)**
- **Built-in Loudspeaker**
- **Beyond Compare in Performance and Cost**
- **Qualifies for FCDA Matching Funds**



15 TUBES!

INDUSTRIAL RADIO CORP.

428 N. Parkside Ave. • Chicago 44, Ill.

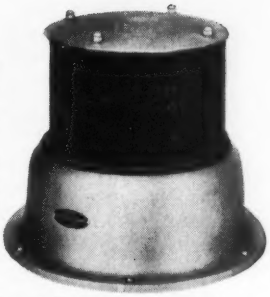
CARPENTER LIGHTS

SPOTLIGHTING FOUR GOOD REASONS WHY EVERY FIRE DEPARTMENT NEEDS THEM

1 To clear the way!

Two of the many types of CARPENTER Warning Beacons are illustrated here. Above is the "WIG-WAG" REDHEAD . . . an oscillating beam sweeps the way. Six or eight inch diameter available.

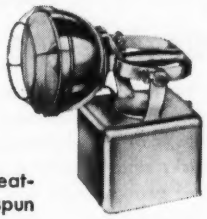
At left is the RAD FLASHING AUTOMOTIVE BEACON. Powerful, half-mile range in all directions from its 5⅛" Fresnel Beehive Dome in red, blue, amber, or combinations.



NEW! The RAR ROTATING AUTOMOTIVE BEACON is newly designed. High-intensity, sealed-beam spotlight rotates horizontally to project its powerful beam through a full 360°. Mounts snuggly on any roof contour or use as stationary beacon. Sturdy, sim-chrome aluminum construction.

Size A — 6, 12, or 115 volt, 11" x 10" high... $62.50
Size B — 6 or 12 volt, 7¼" x 6½" high..... $49.50

2 To see danger!



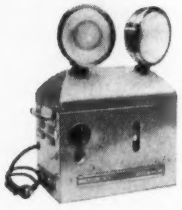
When the need is for a portable searchlight or work light, CARPENTER'S "PORTALITES" are highly recommended. Standard equipment in most fire departments, they are built for longer life, dependability, and rough treatment. Beautifully wire-brushed, cast or spun aluminum throughout. Illustrated model has self balancing handle and rechargeable battery, two-way switch giving choice of mile-range searchlight or 20 hour continuous work light. Many other rechargeable and dry cell battery types available. Send coupon for details.

3 To warn of danger!

Protect men, equipment, and the public from injury, with CARPENTER WARNING BEACONS. The RHD FLASHING HIGHWAY BEACON shown here will protect fire hose and has other emergency applications. Powerful beams are visible for a half mile in any direction. Fresnel Beehive Dome in Red, Blue, Amber, or combinations. 72 hours continuous light . . . much longer if used intermittently. Other models available, including Neon types for 100 days and nights per battery.

4 To protect life!

When your recommendation or advice is sought for automatic emergency lights in places of business, public assembly, or industrial plants, etc., remember "Watchmaster" AUTOMATALITES. Instant, automatic illumination for large areas or pinpointing of critical control sectors. The highest quality at the lowest practicable price. A complete line is available for all applications including explosion-proof, remote control, hospital lights, etc. Send coupon for literature.



CARPENTER Manufacturing Company

200 BRADLEY STREET
SOMERVILLE 45, MASS.

Mail coupon for details →

Send more information about_____

Name_____ Title_____

Address_____

IN CANADA — NORTHERN ELECTRIC CO.

1059 ITEMS from a SINGLE SOURCE!

Fyr-Fyter offers you the most complete line of quality fire extinguishers and fire department equipment in the industry!

Fyr-Fyter is the largest single source for Underwriters' approved portable fire extinguishers, fire hose, nozzles, couplings and other brass goods, pumps, clothing, ladders, warning and signaling devices, first aid kits, masks and breathing apparatus! Select from a practically limitless list of extinguishers and equipment that meet all the needs of *municipal, industrial* and *commercial fire departments.*

All of these products are available through Fyr-Fyter sales and service representatives . . . the largest sales force in the industry! They are fire protection specialists with knowledge, experience and training to offer counsel and make recommendations on specific problems. They represent a company that has enjoyed a nationally respected reputation for quality products since 1916.

YOU TALK TO ONE SALESMAN . . .
PLACE ONE ORDER . . . PAY ONE BILL!

TEAR OUT THIS COUPON AND MAIL WITH YOUR LETTERHEAD TODAY!

☐ Send your 40-page Fyr-Fyter Extinguisher Buyer's Guide.
☐ Send your 60-page Fyr-Fyter Accessory Products Catalog.
☐ Send your 16-page Fyr-Fyter Interior Fire Fighting Equipment Catalog.

FF-8

The Fyr-Fyter (FIRE) (FIGHTER) Co.

221 CRANE STREET, DAYTON 1, OHIO

REPRESENTATIVES IN PRINCIPAL CITIES

OUR 40th YEAR OF MANUFACTURING . . . THE MOST COMPLETE LINE IN INDUSTRY

BRANCH OFFICES: NEW YORK, BOSTON, PHILADELPHIA, CHICAGO, ATLANTA, DALLAS, SAN FRANCISCO, PORTLAND, SEATTLE

EAGLE NATECS RADIO-CONTROLLED SYSTEM REPORTS:

THIS INTERSECTION IS CLEAR!

. . . even another emergency vehicle won't cross it now

This driver knows the intersection is clear . . . by the glowing white light. And if a second emergency vehicle should approach on the cross-street, another white light facing the second driver will flash on and off, warning that the first vehicle has priority.

Natecs is radio controlled. A transmitter on the vehicle beams the message to a receiver on the intersection signal. And it's all automatic. The driver doesn't even have to flip a switch when the vehicle changes direction. Operation on radar frequencies permits a narrow beam that won't affect any signals but those directly ahead . . . up to ¼ mile.

EAGLE

EAGLE SIGNAL CORPORATION
Municipal Division
Moline, Illinois

MAIL COUPON TODAY

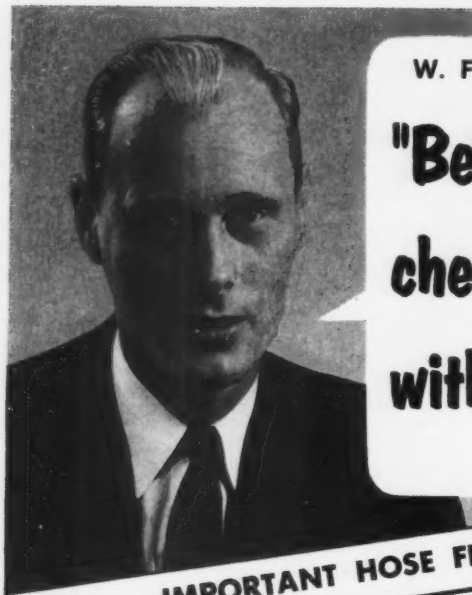
EAGLE SIGNAL CORPORATION
Municipal Division, Dept. FE-157
MOLINE, ILLINOIS

Please send complete information on Eagle's new emergency traffic control system.

NAME AND TITLE

MUNICIPALITY

FULL ADDRESS



W. F. ANDERSON, BOSTON Hose Sales Mgr., says:

"Before you buy fire hose... check BOSTON'S advantages with any other hose!"

IMPORTANT HOSE FEATURES	BOSTON Fire Hose	Other Mfrs. Fire Hose
1 A hose for every fire fighting need from a proven, reliable source.	✓	
2 Single responsibility — couplings and fittings custom-made by same company that manufactures the hose.	✓	
3 Made by the originators of circular woven fire hose — with over 75 years of experience.	✓	
4 Seamless tube of highest quality rubber for longest service life and least water absorption.	✓	
5 DACRON filler for lightness, extra strength, superior flexibility.	✓	
6 Longer service life under most severe conditions.	✓	
7 Every length pressure tested prior to shipment.	✓	
8 Maximum protection against mildew, rot, and freezing.	✓	
9 Compact . . . coils easily and dries quickly.	✓	
10 Fast, personalized service from warehouses throughout the United States.	✓	

Only BOSTON offers EVERY important feature

See your BOSTON agent or write to BOSTON for free descriptive literature

BOSTON FIRE HOSE

BOSTON WOVEN HOSE & RUBBER COMPANY
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Also producers of INDUSTRIAL HOSE • BELTING • V-BELTS • MATTING • PACKING • TAPE

INSPIRATIONS FOR LEADERSHIP

MASTERFULLY MAGNIFICENT
IN BEAUTY AND PERFORMANCE

With the spectacular beauties shown above, Miller-Meteor advances into the future era of ambulance design! Never before has beauty-plus-performance been so dramatically expressed. Pictures can but slightly convey the superb craftsmanship of these masterful creations!

Miller-Meteor streaks into 1957 with the world's widest selection of fine ambulances—21 different models—three different headroom heights—all with the incomparable chassis by Cadillac. Unquestionably safe construction, matchless dependability, unparalleled efficiency, to fill every need. Four-litter emergency ambulances meet all requirements of rescue squads, fire and police departments. A spectacular M-M ambulance says so much about the business, group, or community that owns it.

For full information, contact your M-M distributor now, or write to

MILLER-METEOR MOTOR CAR DIVISION OF WAYNE WORKS, INC.
BELLEFONTAINE, OHIO

MIDWESTERN

Safety Clothing for FIREMEN

The Original
STRIPED SAFETY COAT

- ☆ ***New Yellow Rubber Stripes!***
- ☆ ***Maximum Visibility!***
- ☆ ***Maximum Durability!***
- ☆ ***Exclusive Safety Features!***

YOU deserve the BEST PROTECTION OBTAINABLE for your hazardous work of protecting life, and property against fire. The Mackinaw Safety Coat with new yellow stripes is the answer! Highly visible stripes are rubberized as part of the material . . . not painted, glued or sewed on. Tests indicate that the new yellow, like black, retains its natural color and has the same durability.

There are many imitations but no substitute for the superior quality, design, fabric texture and safety features you get by specifying MIDWESTERN!

MIDWESTERN
COMBINATION SAFETY SUIT

The Midwestern Rubberized Coat and Bunker Pants make it easy for firemen to keep both warm and dry even in the most severe weather. Close fitting collar and elastic inner sleeve keep out sparks and water. Detachable wool lining. Pants have double-stitched seams, reinforcing rivets at points of strain, large roomy pocket space.

For complete information on our full line of safety clothing for firemen, see your Midwestern dealer. A letter to the factory will also bring you literature and materials for your inspection.

NONE GENUINE WITHOUT THIS TRADE MARK

MIDWESTERN SAFETY MFG. CO. Mackinaw, Illinois

Manufacturers of the Famous **MACKINAW Safety Coats**

NOW... Handle Fallen Wires Safely, Quickly, with an EXTENDO Saf-T-Pole

New! The fiberglass Extendo Saf-T-Pole permits rapid, safe handling of emergency fallen wires. Light weight, compact, easy to store and use, a Saf-T-Pole should be standard equipment on every fire and rescue vehicle.

- Fiberglass is non-conductive. High dielectric properties make it safe for personnel handling wires.
- Light weight. Telescopes to full length (16'-20'-24'-28') easily. Sections lock securely for push-pull operation.
- Bronze push-pull head for wire handling. Interchangeable with universal tool head for other line work.
- The Saf-T-Pole is also an excellent ice-rescue tool. Strong and sturdy, the fiberglass is double reinforced at joints for extra rugged use.

- **16'-20'-24'-28' lengths. Telescope to 4½'.**
- **Non-Conductive—tested to 100 KV per foot.**

ORDER YOUR Saf-T-Pole

TO: Orchard Industries, Inc., Dept. FE-1, Hastings, Michigan

Gentlemen:

Rush me a fiberglass Extendo Saf-T-Pole

☐ 16' Extendo Saf-T-Pole @ $40.00 ☐ 24' Extendo Saf-T-Pole @ $64.50
☐ 20' Extendo Saf-T-Pole @ $52.00 ☐ 28' Extendo Saf-T-Pole @ $78.50

*Company or Fire Department*_____

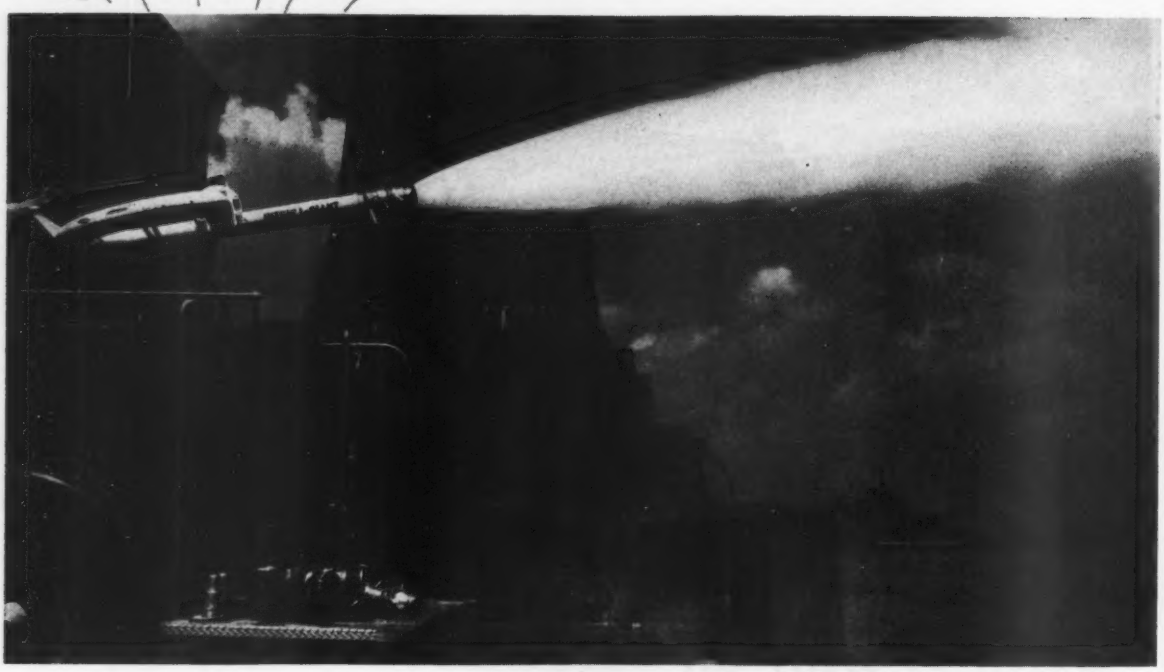
*City*_____ *State*_____

*By*_____ *Position*_____

IN FIREFIGHTING—

CHIKSAN Intelli-Giant...

THE NEW BIG BERTHA OF FIRE SUPPRESSION



Capable of delivering a quenching 2,500 gallon per minute deluge, this latest development in master stream fire fighting equipment has a dramatically effective striking range of better than 320 feet in distance, a far-reaching 165 feet in height. Yet with all of its powerful striking force, one man seated at hydraulic controls has finger tip mastery of the Intelli-Giant at all times. Extremely versatile, the design of the Intelli-Giant makes it ideally suited for installation either on mobile equipment or as a fixed emplacement in hazardous areas. "Modern Firefighting," a highly informative movie on the Intelli-Giant is available. Please write Chiksan, Brea, Calif. to arrange a showing, attention Dept. 241.

Dispatched to combat a roaring mill fire on an island in the Schuylkill River, this Intelli-Giant, owned by the Philadelphia Fire Department, reached areas where conventional monitors could not. It prevented the inferno from engulfing 650 feet of the seven story building not yet affected by the fire.

Photos courtesy Philadelphia Fire Dept.

A SUBSIDIARY OF FOOD MACHINERY AND CHEMICAL CORPORATION

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CHIKSAN

CHIKSAN COMPANY—BREA, CALIFORNIA • CHICAGO 5, ILLINOIS • NEWARK 2, NEW JERSEY

Well Equipment Mfg. Corp. (Division), Houston 1, Texas • Subsidiaries: Chiksan Export Company • Chiksan of Canada Ltd.

Notifier - THE INDUSTRY'S LEADER

AN ENTIRELY NEW CONCEPT

introducing PHON-O-MATIC

The first fully automatic dual-purpose emergency communication system. *

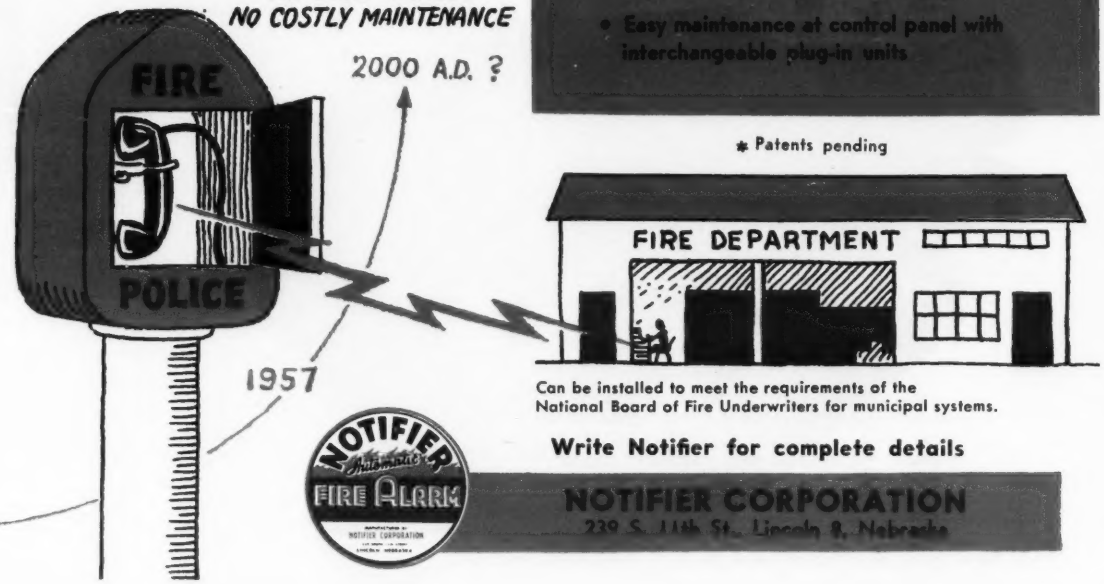
Designed for municipal use, national security, and plant protection.

- Completely reliable fire and police communication
- Utilizes both audio and visual signals —code and voice
- Infinite number of non-interfering signals can be transmitted simultaneously
- Heart of control unit located in console at fire or security headquarters
- Easy maintenance at control panel with interchangeable plug-in units

* Patents pending

BREAKS THE CODE-WHEEL BARRIER

WITH ITS NEW MUNICIPAL SYSTEM!



Can be installed to meet the requirements of the National Board of Fire Underwriters for municipal systems.

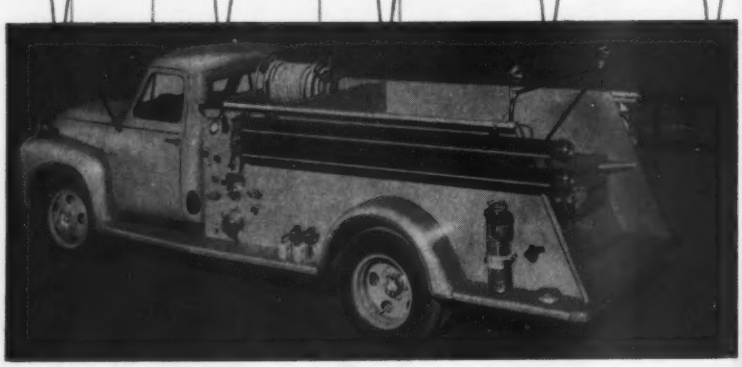
Write Notifier for complete details

NOTIFIER Automatic FIRE ALARM

NOTIFIER CORPORATION
220 S. 11th St., Lincoln 8, Nebraska

the only pumper better than a Boardman pumper

The *heart* of your fleet will be a dependable, economical BOARDMAN pumper

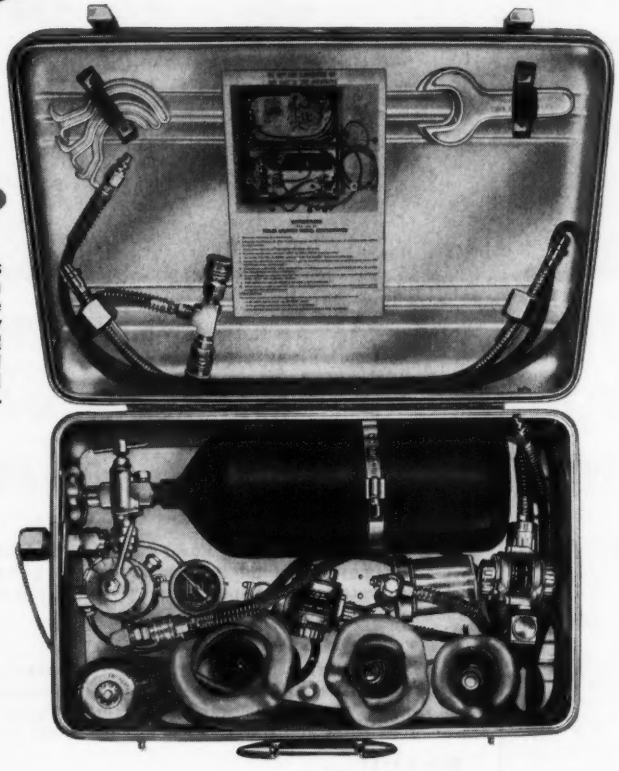


Write for your copy of our illustrated folder, showing the complete lineup of BOARDMAN features you'll like.

THE BOARDMAN CO. 1401 SOUTHWEST 11TH • OKLAHOMA CITY

MODERN FIREMEN ARE SWITCHING TO THE ALL NEW MODERN SEELER RESUSCITATOR

ONCE YOU SEE IT IN OPERATION YOU WOULDN'T BE WITHOUT IT . . .



LIGHTWEIGHT

The Seeler resuscitator proves that it isn't necessary for such a unit to be a burden for the operator to struggle with. By using aluminum alloys and stronger but lighter alloy steel Globe has reduced the over all weight of this full size resuscitator to 30 lbs.

SIMPLICITY

Turn on the cylinder, select the size facepiece and attach it, apply to patient's face and artificial respiration begins. This resuscitator embodies the simple, rapid operation so essential in emergencies.

SAFETY

Globe has endeavoured to protect the patient at every step of the way. Three separate safety valves are included to prohibit excessive pressures from reaching the patient. The high pressure hose is tested to withstand 5000 lbs. per square inch.

SELECTIVITY

No other resuscitator but the Seeler lets you operate with positive and negative or intermittent positive pressure. Both pressures are adjustable and a control is provided to speed up or slow down the rate of breathing.

ECONOMY

You can economize on oxygen without sacrifice of effectiveness by using the air dilution valve. As much as an hour's use from the single cylinder, when fully charged, can be expected when air dilution is employed.

* The Seeler Universal Resuscitator was designed at Aero Medical Laboratory of Wright Air Development Center. It underwent extensive clinical testing in leading medical schools and hospitals throughout the country. —— See this Resuscitator, Inhalator, Aspirator, as soon as possible.

Also Available at Fyr-Fyter Dealers

Clip and mail now

GLOBE

☐ Please arrange a demonstration ☐ Please send literature

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Street

City State

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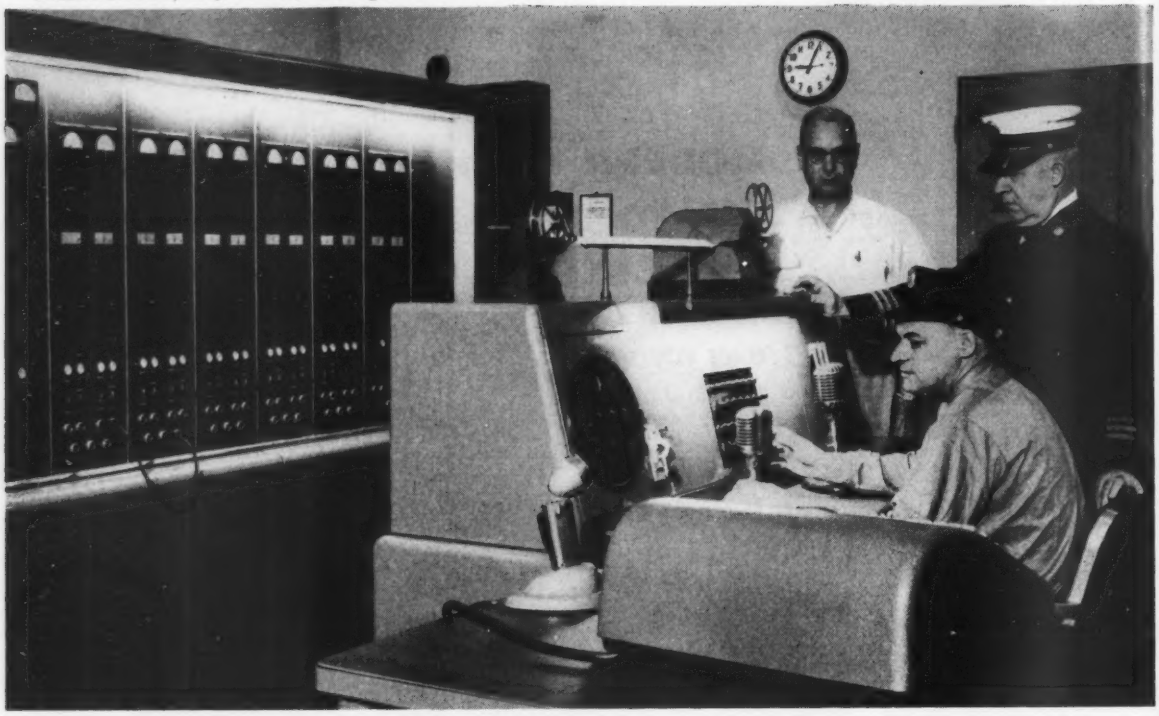
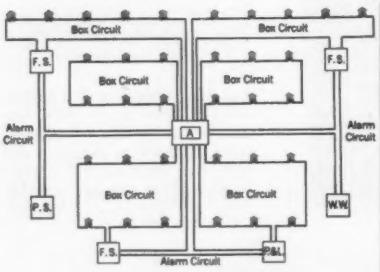
MEDICAL AND HOSPITAL DIV., GLOBE INDUSTRIES INC., 125 SUNRISE PLACE, DAYTON 7, OHIO

Lancaster, Pa., Reports...



New Automatic Alarm System Speeds Response to Alarms — Gives Extra Protection to Citizens



New equipment consists of . . .

Type B, Form 4 Central Office, replaces one installed in 1896.

Voice Communication Equipment between central office and outside Fire Stations.

FIRE FACTS **Gamewell Type B Fire Alarm System** is completely automatic. Box circuits go to Central Alarm Station from where Alarm Circuits connect Fire Stations and all important Emergency Centers. Recording devices, and audio and visual alarm signals are furnished as required.

Remember-a Gamewell System is FIRST when seconds count!

A new Gamewell Type B, Form 4 Automatic Coded Telegraph Fire Alarm System is now on the job in Lancaster, Pa. It gives Chief Harry Miller a big edge in protecting life and property against the hazards of fire in his community.

Here's how...

At the instant a fire box is "pulled", coded signals are automatically transmitted to Fire Headquarters, and immediately retransmitted to all engine houses, the water department, police department, power and light plant and the fire chief's home — all simultaneously.

Result...

The entire fire defenses of Lancaster are mobilized within seconds . . . automatically. Men and equipment get to the scene during the vital first seconds of the emergency. The citizens are assured of the most effective fire fighting possible.

Ask for ALL the Facts

Gamewell experience with all types of fire alarm and signalling systems can help your community plan for maximum fire defense. A special FACTS KIT is available to answer questions on fire alarm systems and Gamewell will be happy to conduct a FREE Survey to assist you in planning. Write or call . . .

THE GAMEWELL COMPANY
Newton Upper Falls 64 Massachusetts
In Canada: Northern Electric Co., Ltd., Belleville, Ont.

GAMEWELL®

THE BOX IS POSITIVE · REDUCES HUMAN ERROR

FIRE
ENGINEERING

VOL. 110, NO. 1 JANUARY, 1957

CONCENTRATION – COORDINATION – COOPERATION

Within a period of three weeks the editor of FIRE ENGINEERING stood on the fire line of one of the West's worst forest and brush fires, which killed eleven men, and saw its progress finally stopped with the aid of tiny flying chemical tankers; listened to experts of the nation's Air Force discuss some of the most fantastic problems of fire extinguishment and rescue involving today's and tomorrow's Brobdingnagian military planes and weapons at the worldwide USAF Conference on Fire Protection and Aircraft Rescue at Denver; and finally, witnessed demonstrations of equally unbelievable new means of meeting those hazards in the form of giant multiple-use nozzles capable of discharging foam, fog, fog-foam, straight stream, flat stream and chemically impregnated stream.

Each of these several incidents illustrated two major fundamentals which the fire service should take to heart. The first is that there is no letup in the severity, complexity and destructibility of fire, whether on the ground or in the air. The second is the need for concentrating every possible mental, mechanical and material resource to develop the most effective ways and means to cope with these present and potential fire hazards.

The critical point stressed at both the Miami IAFC and Denver USAF meetings is the crying need for vital research on fire itself, its many characteristics, its predictable and unpredictable reactions; research into the causes and effects of fire in all its broad ramifications. Finally, research into the best, safest and most rapid means of detecting and reporting fires, getting to work on them and extinguishing them with least cost and effort—and danger—to the fire service, the property owners and the public.

As we enter the new year, it is gratifying to note the progress that has been made in the field of fire detection and extinguishment—yes, and in fire prevention. But measured by the job to be done, by the tasks that lie ahead in this hectic chemical and atomic era, it would seem we've barely scratched the surface.

It's a rat race—with fire, explosion, radioactive fallout and related deadly hazards on the one hand, competing with the nation's fire service, and all others consecrated to the task of fire protection and prevention on the other.

It's a race with which the public—and more regrettably, too many of those civic officials charged with developing and maintaining the municipal protective services to safeguard our people against these existing and future hazards—are woefully ignorant.

Research—scientific, creative, basic and advanced—is one of the vital factors upon which to build our much needed fire suppression policies, plans and procedures.

As we've said before, to meet the challenge calls for united efforts of private, public, municipal, industrial and research agencies, and the channeling of their findings through some centralized body to make the results readily available to all of the fire service—not to just a part of it.

The government's Armed Forces are doing excellent work in research and development of curative measures and material. Private industry and certain groups and associations are giving increasing time, thought and energy to these problems. Our fire schools and colleges are quick to apply constructive factual material to the education and training of fire fighters. But there is one weakness about the whole endeavor. There is no comprehensive program; no coordination of effort; no planned, communal cooperation between all these interests—private, public, municipal and Federal government in a joint undertaking. The result is inefficiency, wasted effort.

The truth is, we are doing well in spite of our methods, not because of them. How much more effective could all this effort be, if we had a central authority to correlate and coordinate all this excellent individual effort and to channel it into and through the proper authorities.

Roi B. Woolley

Editor

Fireboat "William Gaynor" operating heavy streams on flaming Luckenbach pier near point of explosion and on exposed pier from which picture was taken. Because of the length of the piers, the fireboats had to bear the brunt of the fire fighting. They were aided by Coast Guard cutters and tugs—*N. Y. F. D. photo by Hellriegel & Heffernan*

Death and Destruction Wholesale— In New York City's Worst Pier Fire Disaster

Fire force successfully meets unparalleled situation in which 10 were killed, 246 injured and chaos threatened the Brooklyn waterfront

NEW YORK has had many pier fires of consequence but none so loaded with drama, tragedy and miracles as that which swept Pier 37 at the foot of 35th Street, Brooklyn, on December 3rd, bringing death to ten persons, injuries to 246 and causing estimated property loss of $15 million.

The fire started shortly before 3:15 p.m. on the 1,748-foot structure of the Luckenbach Steamship Lines, longest marine terminal in the city, located in the Bush Terminal sector, part of the New York Port of Embarkation in World War II.

The pier, built in 1916, consisted of a metal-clad wood structure, one story in height, on decking of 12 to 14 inches of reinforced concrete, topped by 2 inches of macadam, the whole mounted on heavy piling 20 inches in diameter and equally heavy cross members. At the time of the fire there were approximately 233 longshoremen working on or about the pier, which was loaded with a variety of material in transit, including some 4,000 tons of sisal, a highly flammable fibre which was being unloaded from a Royal Netherlands Steamship freighter at a nearby 31st Street pier shortly before the fire, in reported violation of the city's fire laws. In addition, among the cargo was some 25,000 pounds of foam rubber stacked in bags in the center of the pier, together with paint, lacquer, olive oil, horsehair, rubber cement, unrefined sugar, chemicals and fuels, etc.

Exposures included three other large piers as well as a small auxiliary pier of the main Luckenbach shed together with the vast Bush Terminal buildings located about a block inland from the piers. A number of steamships, including the Isbrandtsen Steamship Company's "Flying Enterprise II" at the company's pier at 29th Street, were at neighboring docks. The slips also contained numerous lighters and small craft. Towed to safety after the fire started were the "Greek Victory," a United States-owned Victory ship berthed at the Luckenbach pier; the Farrell Lines freighters "African Lightning" and "African Grove," berthed at 33rd Street, both of which were loading cargo; the Lloyd Brasileiro freighter "Loide Brasil" which was moved from 30th Street, and a number of lighters.

Exactly what caused the fire may never be known. It is presently attributed to acetylene welding equipment said to have been in use in welding door chains at about the point where the fire originated. Three acetylene welding tanks with cutting tools were found after the fire, as well as seven drums of carbide. Workmen reported discovering the fire close to Crib No. 3 in a wired-off area containing a "special cargo" collection near the rubber stock. Five workers reportedly attempted to fight it with extinguishers in its early stages.

The structure was sprinklered but not in accordance with present-day stand-

ards. It is said several heads opened over or near the initial fire but because of the stockpiling and the highly flammable contents of the pier, the system was unable to contain the blaze. As it spread, other sprinkler heads opened, but to no avail. The explosion ended any hope that the sprinkler system might control the fire.

About 25 minutes after the first alarm and before all multiple alarm companies were at work, a violent explosion occurred which spread death and destruction. Ten persons, three of them boys, died as a result of the blast which was felt 35 miles away, and which shot a wall of flame hundreds of feet into the air, touching off fires in three adjoining piers, gouging out a rectangular crater down to the water line, 150 feet across the 175-foot pier and 75 feet at the mouth, practically severing the structure at its middle. Explosive experts summoned later, termed the blast "a high order detonation."

The explosion, which came at 3:40 p.m., blew the glass and steel roofs off most of the piers, knocked down hundreds of firemen, workers and onlookers and showered debris all over the neighborhood. Thousands of windows were shattered, some a distance of 5 miles from the fire. White hot metal and flying glass injured pedestrians blocks away. Flying firebrands set fire to exposures, piers, houses, ships, shops and autos over a wide area.

Grim tragedy entered the picture with the deaths and injuries to school children who had crowded in on the land sides of the piers to see the excitement. Nearly all were knocked flat; several fell into the bay. Three were killed by flying debris. The miracle was that notwithstanding their exposures to the blast, not a single fireman was killed although many were injured.

Three companies were operating on the pier roof toward the land bulkhead and nearly all of these men were blown off the structure, some into the water. Others at the pier bulkhead were blown flat. The fireboat "Fire Fighter" was the special object of a kind providence. Its crew had nosed it into the blazing pier at almost the spot where the blast occurred, but just before it came, on orders of a land chief, the crew worked the boat inshore. Only a few minutes later and the entire crew would have been wiped out. As it was, the ship did not fully escape the blast. It was reported that most of her crew topside were blown overboard, although this was later denied. Those below decks suffered shock and injuries. One of the less hurt tried to bring her under control and keep up the fight. But later the boat had to be towed away, her sides pitted and scarred, her ports broken. Worse still, one of her shafts was damaged. It is said it may cost $50,000 to repair her.

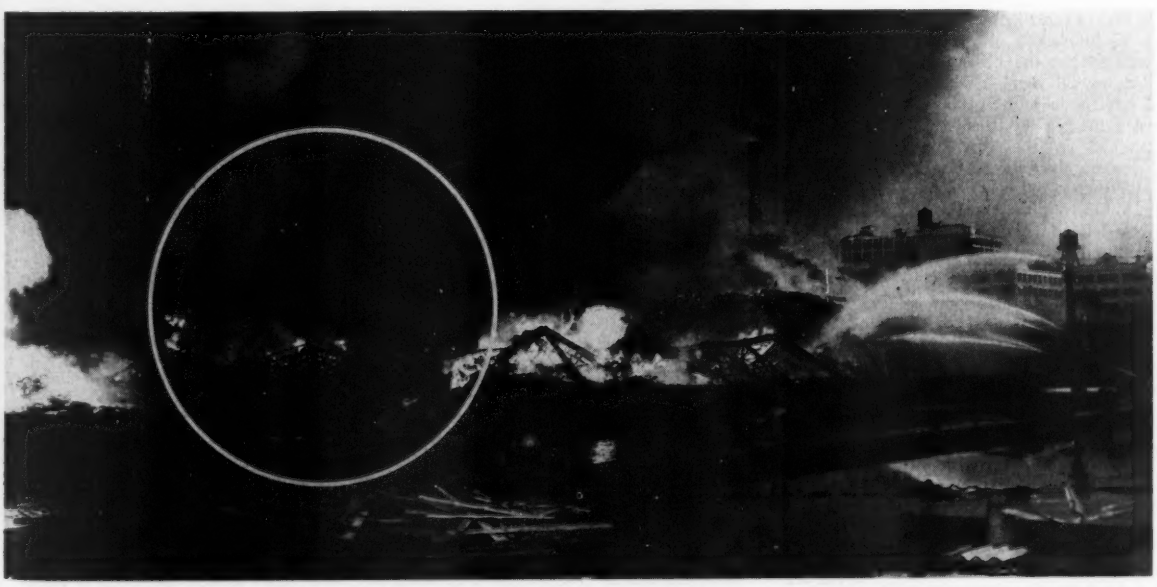
Among those who escaped serious injury was Fire Commissioner Edward F. Cavanagh, Jr. Only just arrived at the scene, he was lifted from the ground, whirled around and slammed to the ground. A 10-foot piece of iron pipe caved in the side of his car. Pier superintendent Clarence Gunther was knocked down alongside the Commissioner. A man next to him was decapitated. A vast cloud of smoke rose high in the air accenting the emergency. Rumors of an atom bomb tragedy spread like wildfire. Telephone exchanges, including those in the Brooklyn, Manhattan and Richmond borough fire alarm offices were jammed with calls. Efforts to report fires started by the explosion by telephone were delayed in some cases as much as 15 minutes. Fire alarm boxes over an area of a square mile were pulled for real and imaginary fires. Only the superb achievements of the fire force, with heavy emphasis on the unflurried, efficient handling of alarms and rumors and the dispatching of fire and emergency equipment by the fire department's Communication Bureau prevented what might have been complete chaos.

Cause of blast a mystery

It is doubtful if the actual cause of the explosion will ever be determined. Numerous different investigations, participated

COVER ILLUSTRATION

The magnitude of the fire control operations and exposure hazards is graphically shown in the aerial view of the fire shown on the cover of this issue. The Luckenbach pier is almost fully involved following the fatal explosion which occurred in about the center of the structure. The Fireboat "Fire Fighter" is operating at the shore end; the Fireboat "McKean" is protecting exposed pier (lower right) badly damaged by detonation. A Coast Guard fireboat attacks from the offshore end. Blast-damaged Bush Terminal building may be seen behind smoke (rear).



One of the miracles. Only minutes before the blast which carved the crater in the Luckenbach pier (area circled) the Fireboat "Fire Fighter" was providentially shifted from a post at the point of explosion to the position shown in the picture—*N. Y. F. D. photo by Hellriegel & Heffernan*

Fire Alarm Hq. Jammed

Within the 15 minutes following the Luckenbach pier blast, the Brooklyn Fire Alarm Office received and had to interpret 39 waterfront box alarms and over 180 telephone calls reporting fires from as far away as three miles. Of the 39 box alarms, eight were covered by assigned fire forces. Quick analysis of phone calls, plus prompt fire department radio reports, prevented what might otherwise have been extensive needless response.

in by experts of the fire department, Bureau of Explosives, Federal Bureau of Investigation, Naval Intelligence, insurance agencies and others, have come up with no solution, thus far. It was learned that 27,000 pounds of a certain type of detonating fuses were on the pier at the time of the blast but neither the Commissioner nor the seven explosives experts whose aid he immediately enlisted after the disaster were able to pinpoint the cause. The fire department, however, has not relaxed its efforts to unearth the origin; already its investigations have disclosed flagrant violations of fire prevention codes and ordinances on city piers and in transportation.

Recently FIRE ENGINEERING told about the New York Fire Department's inauguration of fireboat field inspections. But it is doubtful if even a marine fleet as great as that of New York, can hope to meet the need for pier and other waterfront inspections such as exist in the big city.

Chief believes in miracles

Fire Chief Edward Connors, in personal command of the army of firemen who fought the fire and explosion, said, "In my 39 years in the fire department I have seen miracles, but nothing so miraculous as the fact that none of the firemen in the three companies who were on the pier battling the blaze was killed when the blast let go."

When notified of the fire, Chief Connors left the municipal building by way of the Battery Tunnel and was on 35th Street, a half block from the pier when the detonation took place. He commented, "My car was lifted off the ground and the first thing I saw was a boy with his legs hanging off. I saw two bodies lying on the ground. . . . There were fires in various directions on different piers and warehouses . . . from the Luckenbach Pier . . . I saw a ball of fire rise more than 100 feet in the air."

Describing fire control operations, Chief Connors said, "Fortunately there was no abnormal wind condition to deal with. It was a case of getting all the necessary men and equipment on the job, and fast."

Over his radio the chief directed additional alarms to be transmitted, including a call for Manhattan units to respond via the Battery Tunnel. While these companies were on their way, and before they arrived, he assigned them by radio to various positions so they knew where to attack upon arrival. At the time he was unaware just how many fires he would have to fight between 29th and 37th Streets because of the dense smoke, confusion of traffic and the wild rumors of disaster, already being voiced, but he provided for eventualities in his orders for reinforcements.

To meet the situation he instructed all officers of approaching apparatus to be on the lookout for any spot or other fires they might encounter. How well they did this is attested by the localization of the major blaze, and the quick extinguishment of all secondary fires. By 6:40 p.m. the main pier fire was under control.

Fire fighters were aided somewhat by crews of nearby vessels and longshoremen. Seamen on the "Flying Enterprise II" (commanded by the famous Captain Kurt Carlson) used 11 hose lines from their ship to douse a fire on the wood roof of the 29th Street pier adjoining their ship before it was towed out of danger.

With the additional alarms, white helmeted auxiliary firemen and Civil Defense workers arrived to aid fire and police. Disaster services of Bellevue, Norwegian and other hospitals were quick to respond. Fire forces from Inwood, Rockville Center, Valley Stream and other Long Island places showed up to aid, although not summoned. However they did help increase what the press characterized as "the worst traffic tieup in Brooklyn history." Metropolitan fire apparatus was tied up in the Brooklyn-Battery tunnel and on the Brooklyn Bridge. The Gowanus Parkway was closed for an hour and 20 minutes. Cars of spectators jammed the streets, while curiosity seekers crowded in upon fire fighters and rescue workers on every side. Conditions near the fire were so chaotic that some ambulances could not get through and private cars were used to remove injured from the scene.

The concentration of manpower and equipment included more than 300 firemen, about 250 policemen, scores of physicians, nurses, the Coast Guard, Red Cross, Civilian Defense and volunteer civilian personnel, together with public utility crews.

In recent years only the Wanamaker fire (July 1956) and the Furman Street waterside fire (1935) required more fire fighting forces.

The Field Communications Unit of the fire department provided radio contact between all fire forces. Firemen used walkie-talkies on a larger scale than at any previous fire. The Coast Guard Rescue Coordination Center sent 12 surface craft to the scene, four of them 110-foot tugs equipped for fire fighting.

The police department dispatched three disaster units, four marine launches, nine emergency squads and about 20 radio cars. Two helicopters were used to aid in directing rescue work, fire attack and ship removal. Six ambulances were sent from Long Island Hospitals in addition to the many others from nearer institutions.

Chronology of response

An indication of the magnitude of fire department movements is shown by the following chronological tabulation.

At 3:16 p.m. Luckenbach telephone operator notified Brooklyn Fire Alarm Central Station, reporting a large fire on the Luckenbach Pier at 35th Street. The Brooklyn supervising dispatcher notified Engine 228 and Ladder 114 to respond but inasmuch as Box 1499, Marginal

Land end of Luckenbach pier where fire fighters made a successful stand. Dock was loaded with thousands of tons of exposed materials, much of it highly combustible—some of explosive characteristics. It is considered a miracle that firemen of three companies operating on shore end of pier roof were not killed by the blast

and 35th Street, struck at the same time, a full assignment was ordered. This consisted of: Engines 228, 201, 278, 223 (Fireboat "Fire Fighter"); Ladders 114, 131; Chief Murray, Battalion 40; Acting Battalion Chief Ryan, Battalion 48 and Acting Division Chief Eisenhardt, Division 10.

3:17 p.m. Special Building Box 3-1499-5, a valve alarm from the Luckenbach Pier, struck but not transmitted because assignment already dispatched.

3:20 p.m. Second alarm requested by Acting Lieutenant Kramer, Engine 228, via radio. Responding: Engines 279, 239, 281, 51 (Fireboat "Gaynor" from Staten Island, across the Bay); Rescue 2; Ladder 148 and Borough Chief McGarry. Locating: Engines 250/228, 226/-239, 243/282; Ladders 168/114, 147/-148. Also at 3:20 manual alarm 3-1499-4 was pulled but not transmitted.

3:26 p.m. Third alarm requested by Acting Division Chief Eisenhardt, via radio. His driver reported a lot of rubber was burning at the end of the Pier. Responding: Engines 241, 220, 202, 204, 57 (Fireboat "McKean," the Battery); Ladder 109, Tower 6; Fuel 14; Chief Kane, Battalion 31; Ambulance 2; Chiefs Edward Connors, Conway, Bahr, Holian, Carlen, Masset, Irwin and others. Also Commissioner Cavanagh, Deputy Commissioners Mand, Morr and Pacetta. Locating: Engines 242/241, 224/202, 208/-204.

3:35 p.m. Fourth alarm from Borough Chief McGarry, via radio. Responding: Engines 203, 240, 6, 32 (Latter two from Manhattan) Ladder 122. Fire Department Canteen. Locating: Engines 27/6, Ladders 132/122.

3:42 p.m. Fifth alarm: Chief McGarry via radio reports that a "terrific explosion" had occurred and that men were trapped on the pier. He asked for ambulances and other emergency assistance. Responding: Engines 269, 247, 7, 9; Ladder 15. Locating: Engines 280/269, 254/247, 12/10, 72/7, 11/9; (smaller numbers are Manhattan companies).

3:52 p.m. Ambulance 1 Manhattan, special called to fire. Four public ambulances, disaster unit of Red Cross, and Salvation Army canteen, also called.

3:58 p.m. Fireboat "Duane" special called from her Hudson River berth.

4:07 p.m. Fire Chief Connors ordered the third alarm assignment for Box 36 Washington and Morris Streets at the Manhattan end of the Battery Tunnel to respond to Box 1499. The Manhattan Supervising Dispatcher Pat Finneran requested the Battery Tunnel police to keep one Brooklyn lane clear for the responding units. Finneran lacked three engines to complete a third alarm response. Therefore he changed the third alarm request to a "synthetic fourth" whereupon the following Manhattan units responded to Brooklyn: First alarm: Engines 6 (27); 10 (12), 7 (72). Engine 32 was at the fire. Second alarm: 9 (11), 30. Engines 12 and 27 were both out. Locating: Engines 203/6, 28/10, 72/7, 205/12, 256/9 and 26/30. Third alarm: Engines 31, 13, 55, 17, 15; Locating: Engines 209/31, 221/17. Fourth alarm: Engines 24, 33, 18, 207. Engine 226 was located in Engine 239. Locating: Engines 21/33, 34/18 and 219/207. ( ) indicates covering unit.

4:08 p.m. Engine 77 (Fireboat "Hewitt") special called from the berth of Engine 223 (Fireboat "Fire Fighter") where she had relocated. The "Fire Fighter" had been disabled by the explosion. Lieutenant Gollins, Marine Division supervising engineer, boarded the drifting boat following the blast.

4:26 p.m. Fire Commissioner Cavanagh requested police launches and Coast Guard Patrols to search for and rescue any firemen who might have been thrown into the water.

4.38 p.m. Searchlight 22, Brooklyn special-called.

4:48 p.m. Searchlight 21, Manhattan special-called.

4:50 p.m. Brooklyn dispatcher relocated three pumpers and one ladder to protect areas lacking fire protection.

8:39 p.m. Fireboat "Mitchell," Greenpoint, and Fireboat "Willett" at Hell Gate special-called to the fire.

8:41 p.m. Chief Connors asked for 10 men from the 13 and 15 Divisions.

10:30 p.m. Assistant Chief Conway requested 12 men from Divisions 11 and 12.

12:20 a.m. (Tuesday, December 4) the Manhattan dispatcher relocated Engine 22 in quarters of Engine 32.

Following control of the fire, about 6:40 p.m. Monday, the first land forces began to pick up. Throughout the second day of the blaze about 14 companies continued to operate on the pier and guard against exposure fires. Watch lines were continued for several days further.

Aftermath may be costly

The Luckenbach Line was sued on December 10 for $4,060,000 in suits filed by 15 injured longshoremen, the papers charging the fire and explosion had "resulted wholly and solely by and through the utter willful carelessness, negligence and recklessness of the defendant." Four men sued for $750,000 each. Other suits ranged downward from that sum to $25,000. The suits also charged that Luckenbach had failed to install and maintain sufficient firefighting apparatus and that the storage of "flammable, explosive and detonable" materials either was "known or should have been known."

While the several investigations into the disaster went on, the National Board of Fire Underwriters assigned to the Brooklyn pier fire its catastrophe serial No. 79.

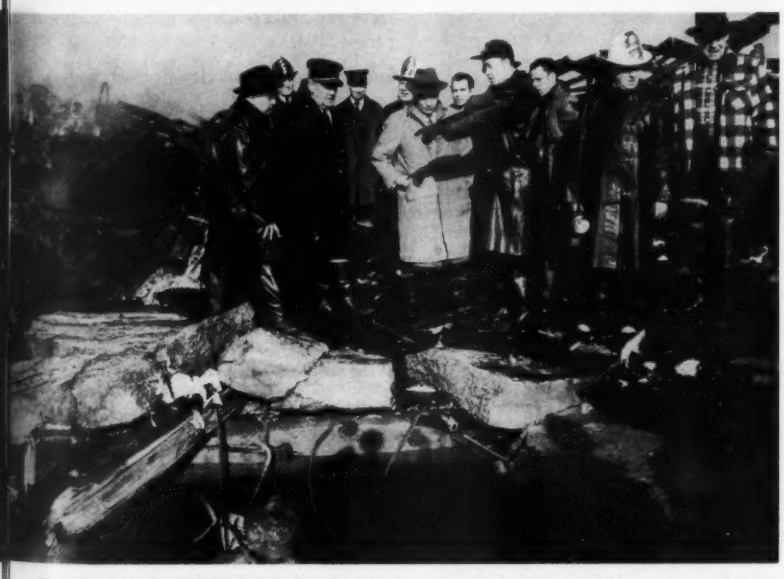
Following the fire, shippers in the New York port area wondered if public outcry resulting from the tragedy would bring on a series of new regulations which may divert cargos from the port. An unofficial ban on detonating fuses and explosives immediately went into effect because of the 37,000-pound shipment of fuses stored in the section of the pier where the explosion occurred. Shipments of sisal also are receiving the closest scrutiny.

It is estimated there will be over 10,000 claims for glass breakage from the area hardest hit. City sanitation trucks carried away an estimated 1,800 barrels of broken glass and debris.

Losses and conclusions

Pier 37 was almost completely destroyed. Four other piers were damaged

Continued on page 71



Fire Commissioner Edward F. Cavanagh, Jr. points out evidence of blast's destructiveness at edge of pier crater to Mayor Wagner and (left to right) Martin Scott, Bureau of Fire Investigation; Edward Connors, Chief of Department and Deputy Chief Arthur J. Masset, in Charge, Division of Fire Prevention (with helmet)—*N. Y. F. D. photo by Hellriegel & Heffernan*

A Special FIRE ENGINEERING *Report on the employment of chemically charged aircraft during recent California Forest Fires*

Airborne Chemical Attack on Brush and Forest Fires Pays Off—

Tiny aerial tanker sprays a coating of borate solution on side of canyon during San Diego's Cleveland National Forest blaze. Procedure is to coat vegetation ahead of fire with fire retardant mixture to gain time for ground fire crews. Although of limited capacity (approximately 120 gallons per trip) little planes with courageous pilots performed yeoman's service

The December 1956 issue of FIRE ENGINEERING carried a report by Cliff Dektar of the serious forest fire in the San Bernardino area of California caused by the crash of an Air Force jet fighter on September 21, 1956. In that article the use of water and chemical solution application direct from aircraft flying over the burning area was reported. While the method used has been experimented with and used on minor forest fires previous to the San Bernardino blaze, the aerial operations carried on in the Lake Arrowhead vicinity were the first ever employed on a major forest fire.

Since that episode, aerial chemical drops have been successfully employed in the November San Bernardino and San Diego holocausts and the more recent costly Los Angeles County conflagration.

The Editors

THE MAGNITUDE of forest fire operations in the State of California can be easily understood by noting the loss figures issued by the San Francisco regional office of the U. S. Forestry Service. The total damage resulting from 8,173 forest fires on federal lands during 1955 amounted to $32,172,000. Of this total $29,300,000 was accounted for by 1,466 fires in the State of California! Of the 373,000 acres burned over in the entire country, 50 per cent of this total was accounted for by fires in the State of California! These figures do not include forest lands administered by state, county and local government subdivisions.

For these reasons the Federal Government, in cooperation with the California State Forestry Service, county and local governments, is constantly testing and evaluating new procedures in an attempt to find an answer to the herculean task of combating fire in the tinder dry summer and fall seasons of California. Some of these tests have been reported in FIRE ENGINEERING. (See Operation Fire Stop, January 1955.) During 1955 and 1956 special tests were conducted at the U. S. Forest Service Special Equipment Center, Arcadia, Cal., to investigate and evaluate the idea of dropping water and chemical solutions from aircraft flying over a fire. These experiments and spectacular results on one fire during 1955 led to the adoption of the present techniques.

Shasta drop startling

Aircraft was used in a limited manner in the Mount Shasta area during the 1955 season. One fire, near Castella in the Shasta National Forest, broke out at the 3,500-foot level in the mountains.

As an experiment it was decided to try aircraft because it would require a fire crew several hours to reach the scene. By the time five Stearman crop-spraying planes had been loaded and were airborne, the fire had grown to an area of 150 acres. These aircraft completely extinguished the fire with approximately 60 drops before any of the ground fire crews could reach the scene!

The amount of money saved in timber, replanting, expense of extra fire crews, special equipment, etc., because of the fast fire control could easily justify greater investment in the maintenance of several fire fighting aircraft for one year and this reasoning led to their employment by the Forest Service and further development in the year 1956.

Prior to the San Bernardino aerial drops, operations were carried out in 1956 on the Sunsmuir, Pine Mountain, Cornwell and Deluz fires. At the Beaumont fire, just two days prior to their employment in the San Bernardino area, the seven Stearman aircraft made a total of 14 water-borate mix drops and brought the fire completely under control before fire crews could reach the scene.

Special techniques developed

The airplanes used were contracted by the Federal Forest Service from a seed and dusting company and modified for the techniques to be employed. A hopper holding about 125 gallons, the maximum safe load for the aircraft employed, is mounted in the plane and emptied by means of a throat lid dump valve. This valve, 6 inches by 20 inches, hinges forward and is opened manually. Once opened it cannot be closed until landing. A gravity system is used to load the hopper through a 5 or 6-inch loading lid.

The water-borate drops are made from a very low altitude on the fringe or "finger area" of a fire by a single aircraft or by several flying in a staggered formation and directed by a host plane. Approximately four to six seconds are required to drop a load.

Contrary to popular belief it should be noted that drops are not made on or very near the actual fire. The object is not to "bomb" the fire itself but to slow it and if possible stop its extension. In actual operation the pilots endeavor to

place the solutions close to the fire perimeter and preferably downwind. The principal handicap to this form of aerial attack is smoke which may prevent good visibility, and the extreme heat which can constitute a definite hazard to the pilots. The smallest amount of borate has a retarding effect on a fire which is the result the Forestry Service is striving for. By this means a fire could be held down in size until a ground crew could arrive and extinguish the fire. This is the most important function of the aircraft drop.

Contrary to some reports, no drops or loads have been sprayed through standard crop booms. This method has little effect on a fire because of evaporation when plain water is used and when the borate is employed the solution is too thick to be pumped through the booms or nozzles.

Borate chemical solution

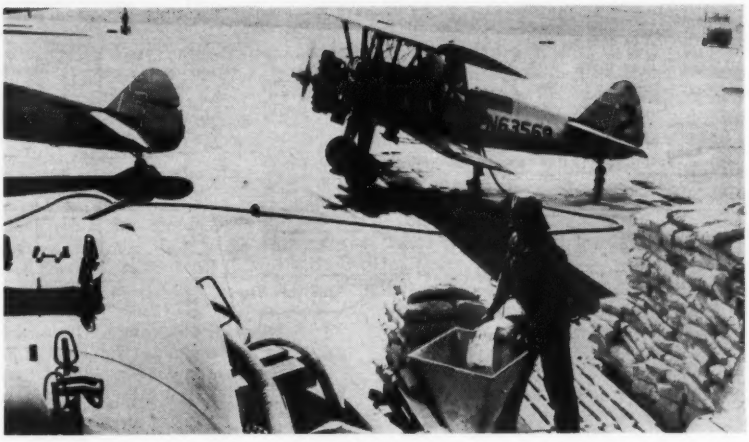
Borate, a sodium-calcium powder, is the most effective chemical used so far although it is difficult to mix this wettable powder and keep it in suspension. Four pounds of the borate are mixed with water to make one gallon of solution which weighs 12 pounds. It is a non-soluble powder with a 200-mesh grain and has a melting point of 2,000 degrees. When in suspension it has a very thick consistency, similar to mud, and cannot easily be pumped through a system.

Most aerial drops made to date have used only water. The chemical drops have been limited to areas where fire has threatened a large section. This is due to a serious drawback of the chemical in that it causes soil and plant sterilization. This effect may last for a period of three years, making replanting impossible and the soil breakdown in hilly areas may result in landslides, watershed damage, etc. The borate also acts as a defoliant, drying up the leaves and killing the trees after a single application. It does however, have a fire retardant effect on the plants or trees. There seems to be little or no evaporation and the residue is very oily.

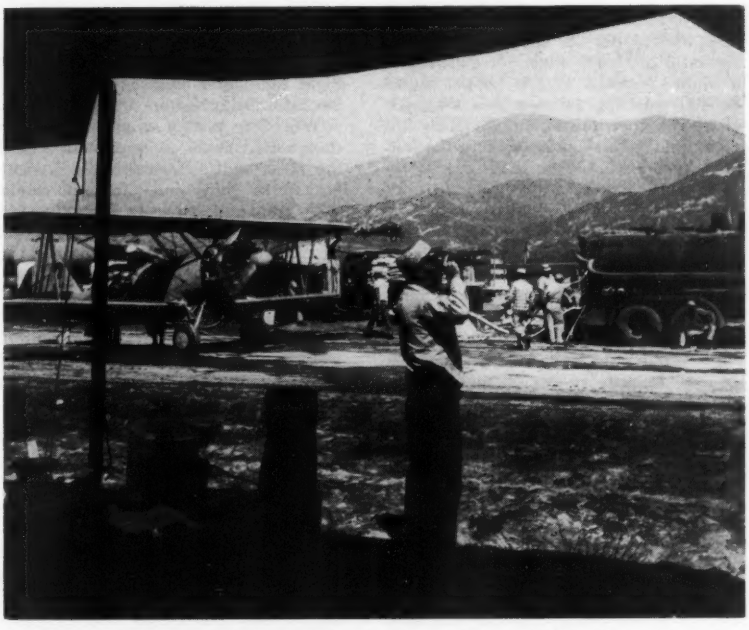
San Bernardino operation

On September 26, 1956, the aerial drop operations were carried out by seven Stearman aircraft flying from the San Bernardino airport and a former Navy TBF torpedo bomber from the Ontario airport. All were contracted for by the U. S. Forestry Service. At the time, the fire was centered north of the Rim Of The World highway and between Lake Arrowhead and Green Valley Lake. Much of the terrain in this area is very rugged with slopes of 50 per cent or more making it extremely difficult or impossible for ground fire crews or equipment to operate.

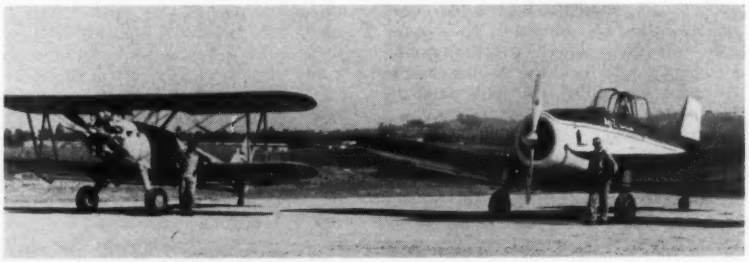
A ground loading station was prepared at the airport to load the aircraft as quickly as possible. Water was pumped from the supply by a high pressure crop spraying unit and metered to a jet fitting at the borate hopper. Borate was dumped



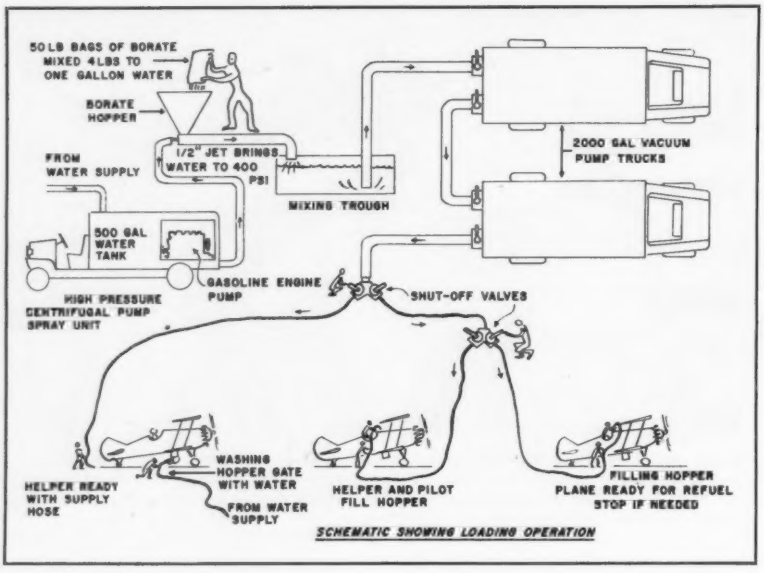
These aerial chemical biplanes being loaded at Norton Air Force Base in action during second San Bernardino Mountain forest fire of last November, were later successfully used in the San Diego holocaust and the December Los Angeles County holocaust. Here the chemical solution is mixed and hosed into tiny sky tankers in "round-the-clock" operation
—Los Angeles Times *photo courtesy Transland*



Aerial tanker loading operations at San Bernardino Airport. Aerial tankers with engines running, are being refilled from mixing-pumping equipment. View is from U. S. Forestry Service communications tent with officer checking on flight of additional aerial units—*Transland photo*



Old and new aerial fire fighters. At left, pre-World War II type biplane converted to aerial tanker, until now the only type available in its size category. Although of limited capacity, these units have distinguished themselves in recent forest and brush fire fighting. On the right is the new AG-2 farm and forest airplane which has substantially doubled the load carrying capacity of the converted crop dusters and sprayers—*Transland photo*


50 LB BAGS OF BORATE MIXED 4 LBS TO ONE GALLON WATER
BORATE HOPPER
FROM WATER SUPPLY
1/2" JET BRINGS WATER TO 400 PSI
MIXING TROUGH
2000 GAL VACUUM PUMP TRUCKS
500 GAL WATER TANK
GASOLINE ENGINE PUMP
HIGH PRESSURE CENTRIFUGAL PUMP SPRAY UNIT
SHUT-OFF VALVES
WASHING HOPPER GATE WITH WATER
FROM WATER SUPPLY
HELPER READY WITH SUPPLY HOSE
HELPER AND PILOT FILL HOPPER
FILLING HOPPER
PLANE READY FOR REFUEL STOP IF NEEDED
SCHEMATIC SHOWING LOADING OPERATION

into the hopper to mix with water at the ratio of four pounds per gallon with a water pressure at the hopper throat of 400 psi. The solution was then discharged into a mixing trough. This discharge under high pressure kept the borate suspended in the water.

Two special vacuum-pump tank trucks, each of 2,000-gallon capacity were contracted for by the Forest Service and used as the storage reservoir and pumping unit for the heavy solution. These special units are used in oil field pumping works and are specially designed to handle heavy mixtures. The suction of one truck was laid to the mixing trough. The two trucks were connected together and the discharge of the second was laid to a gated wye for connection of the aircraft filler hose lines. These lines were arranged to service three planes at one time in the flight ramp area of the airport.

Aircraft ground handling

Aircraft with empty hoppers would enter the loading area where a ground crewman would wash the sticky residue of previous drops from the hopper. The helper would direct a stream from a hose line connected to the water supply while the pilot remained in the plane and opened and closed the hopper gate until smooth action was obtained. The hopper gate was then closed and the ground crewman would hand the loading hose to the pilot who filled the tank with the water-borate mix.

A full load weighed about 1,500 pounds. Following this, the airplane would proceed to the fuel supply point if necessary, and then take off for the next mission. All of the operations of cleaning, loading and refueling were usually done without the pilot leaving the aircraft and with motors running. Loading time from touchdown to take-off was approximately eight minutes.

After the planes left the ramp, hose lines were used to flush the loading area clean. During the entire operation the flight ramp area was patrolled by a fire truck from the Norton Air Force Base.

When the planes arrived at the scene they would circle on the lee side of the fire at about 100 feet altitude. A spotter aircraft or "bird dog," in radio contact with ground fire fighting operations, circled the fire area and directed the drops by visual signals. When ordered to "drop," the "tankers" would dive to within 30 feet of the tree tops and release the load with a nose high attitude.

For fringe or spot fires a single aircraft would approach for the drop. For major efforts along a fire front, formation drops were used. The swath size of the drop varied with the wind conditions but up to 125-feet widths were obtained. The linear path also varied but it was estimated to be approximately 300 feet.

Findings based on San Bernardino fire

The seven Stearman aircraft operating out of San Bernardino airport made a total of 458 aerial drops. These included 20,400 gallons of plain water and 22,860 gallons of water-borate mix. All of the officials interviewed following the operation were very enthusiastic concerning the results and of the future use of this method of aircraft employment.

The actual fire retarding and control value of the aircraft system has proven itself and showed a great potential for hose and equipment drops to ground fire crews as well as fire marking and patrol work, according to these officials.

The aircraft should be equipped with dropping racks to handle fire equipment. It was brought out that some lives could have been saved in recent fires if the separated fire crews had been able to contact the aircraft flying overhead.

Some of the directors of the operation felt that more efficiency is required in spacing and dispatching the airplanes as too much time is lost in assembling airplanes at a drop area as well as at the loading facility. Formation drops were not considered efficient from a ground loading and handling viewpoint and definitely retarded operations.

Radio equipment for the aircraft is a must! None of the Stearmans was equipped and this required that a host plane be used to coordinate and direct the drop operations by visual signals to the attack planes. This could lead to inefficient drops and confusion. Colored dye or smoke markers were also suggested for use by the aircraft.

It was apparent that a controllable dump valve for the hoppers must be used. In small spot fires it may not be necessary to dump the entire load, or several passes at the target area may be necessary. Without a full control valve this is impossible and may result in several planes being tied up in a small area at one time that could be handled otherwise by a single ship.

In considering the rugged terrain and oftentimes inaccessible areas encountered in mountainous country, there is little dispute that fire fighting type aircraft can reach and operate over a fire in minutes compared to hours or days that may be required to move in men and heavy equipment. It is already normal procedure for the forestry services to use aircraft for aerial drops of light equipment and for the parachuting of skilled ground fire fighting crews.

In this major fire and other recent and smaller fires, crop dusting planes and pilots were used. It is apparent that aircraft ground handling, loading techniques, ground and flight equipment, and the tactics used in the aerial application of dust and liquid materials to agriculture can be successfully applied to fighting forest fires. For these reasons crop dusting planes and pilots, who are highly skilled in the specialized techniques of aerial application, are more easily adaptable to fire fighting than are other type aircraft and other type pilot skills used in civilian or military aviation. The TBF converted Navy bomber was able to carry a payload of about 400 gallons. However, the pilots flying the drops and the forestry officials were unanimous in their conclusions that for low-level flying through the mountain passes and over the rough terrain the former torpedo bomber was not maneuverable enough for efficient operation. It also required a special landing and loading area.

The intent of this report has been to show that properly equipped aircraft and trained ground and airborne personnel can more effectively combat forest fires in coordination with the efforts of the fire ground operations. There are many problems still to be solved and in this endeavor a very careful evaluation program is being carried on by the Arcadia Development Center.

San Diego holocaust attests value of aerial cooperation

The editor of FIRE ENGINEERING personally observed the employment of aerial drops and backfiring operations at the more recent Inaja Indian Reservation

holocaust in San Diego County. In this, the most costly of the Pacific Coast fires that raged during November, the tiny Stearman biplanes played an outstanding part. Over 44,500 acres of watershed in San Diego County were destroyed and worse still, it claimed the lives of 11 fire fighters.

This fire erupted in the Inaja Indian Reservation of the Cleveland National Forest about 30 miles northeast of San Diego, on Saturday, November 24, after a 16-year old Indian boy tossed a match into the powder-like dried grass to see if it would burn.

Fanned by strong winds which at times reached gale force, the fire consumed 40 acres a minute in its early stages. By Sunday night it had ravaged over 33,000 acres and was spreading uncontrolled.

As the fire raced on, fire fighters and equipment were rushed to the area. By Saturday night there were about 1,400 men engaged, including 500 Navy personnel, 120 prisoners from State honor camps, 80 more from County honor camps, 100 Indians from the Pala Indian Reservation in San Diego County, and Soboba Reservation in Riverside County, 275 Zuni, San Domingo and Tortuga Indians from Arizona and New Mexico, 186 State Forestry Division Employees and 150 Forest Service Employees. They operated over 150 pieces of equipment—trucks, bulldozers, fire pumpers and other vehicles. In addition, both helicopters and planes were in use.

Each 20- to 30-man crew was equipped with a radio-equipped fire truck. An airport northwest of Ramona was selected as the base for aerial operations. Four privately owned pre-World War II Stearman biplanes dropped their borate solutions on hot spots in the fire area, averaging a round-trip in seven to ten minutes each, with 5-minute loading intervals; two chartered small planes also were used for aerial mapping and reconnaissance. Later a State-owned radio equipped plane was added to direct the aerial attack efforts. Some of the fire fighting force came from the San Bernadino blaze area, that fire having been controlled.

Loading of the little "flying tankers" was done by six members of the WKFL Fountain of the World religious group in Ventura County. These bearded and turbaned stalwarts directed the mixing of chemical solutions. They are veterans of many forest fires.

The aerial attack is credited with confining the fire at many points along what ultimately became a 90-mile fire perimeter. On Saturday, the aerial bombing, using the treated water in coordination with ground fire control crews, saved a large ranch house three and a half miles from Ramona. Here aerial dumps spread a coating of the borate mix over brush and chaparral to hold the advancing blaze until ground fire crews could control it. A number of other buildings were saved by the same system of aerial survey, and coordinated air and ground attack.

The final and most critical stop was made on Wednesday, November 28th, along Route 78 above the little hamlet of San Ysabel, east of Ramona at the bottom of a five-mile grade to Julian when the onrushing fire had broken out of the San Diego River bed and threatened both San Ysabel and Wynola.

This thrust was stopped by a massing of some 500 men, aided by a score of fire units, and the aerial support. The planes, working until the last minute of light, sprayed brush and oak and pine growth on the sides of the canyon with the retardant solution, while fire control experts cut fire breaks down the other side and backfired.

This backfiring, which involved some 500 acres at the critical point, was carried out by forestry incendiary experts employing the latest technique, using electrically detonated bombs, rather than flame throwers for backfiring. Forest and other fire crews then opened up with pumpers to wet down ahead of the backfire and prevent the blaze from jumping Route 78.

The material for the first part of this report was supplied by John T. Hales and Nick Spaise of the Transland Co., Torrance, Calif. and is based on information gained in ground and aerial observation and interviews with Federal, State and Local fire officials.

Appreciation is extended to the office of the California State Fire Marshal, Joe Yockers, for providing the guide for the Editor on the fire line during the final critical stages of the San Diego County struggle. Also to the San Diego Fire Department, the California State Forestry Division, and the U. S. Forest Service for courtesies extended.

San Diego fire reaches crest. Zuni Indians, U. S. and California State Forestry fire fighters, aided by chemical fire breaks, laid down by aerial tankers, halt roaring November fire along State Highway 78 above San Ysabel after consuming 44,500 acres and killing 11 fire fighters

NBFU Revised Grading Schedule

The National Board of Fire Underwriters has issued a revision of the "Standard Schedule for Grading Cities and Towns of the United States," with the objective of bringing the grading up to date by taking into account modern improvements and conditions and clarifying some of the items.

The changes made in the 1956 revised grading schedule as compared to the previous (1942) edition will not materially affect previous gradings of municipalities that have progressed with the times. Some of the more important fire department changes have to do with greater recognition of volunteer firemen, the use of preconnected 1½-inch hose, substitution of aerial ladder trucks equipped with ladder pipes for water towers, raising of hose test pressures to 250 pounds and deficiencies for the ineffective use of or inadequate radio equipment. In cities of over 100,000 population, the required daytime response has been increased to three engine and two ladder companies with the previous permissive substitution of a squad or hose company for one of the required engine companies omitted.

Changes were also made in the water supply, fire alarm, police, fire prevention, building laws, structural conditions, credits and additional deficiencies sections. The rewording and enlargement of the new schedule should result in easier reading and understanding of the methods used by inspecting engineers.

Where's the Fire?

Recently a maid in Westport, Conn., reported that the house where she was working was on fire but she couldn't say where it was. The fireman who took her call asked her what her employer's name was and looked it up in the directory. As luck would have it, there were two persons of the same name living at opposite ends of the town.

While the fire burned merrily on its way, the anxious fireman advised the maid to look around for any mail with her employer's address on it. She found a letter in the mail box with the address —notified the fire fighters who quickly responded.

Chief Harold A. Shippey immediately began a campaign to have domestic help informed of where they work. The Chief said the difficulty stems from the fact that many of domestics are picked up at a bus stop and driven to the employer's house and back again without ever learning what the address is.

Squad No. 1 adds heavy support to the hand lines operating on the warehouse east of the armory. Remains of the armory are shown in background —*Lewistown* Sun-Journal *photo by Philbrick*

Mutual Aid Forces Battle Armory Fire

Five buildings destroyed and seven exposures damaged in Auburn, Maine, inferno

FROM A REPORT BY CHIEF J. COLEMAN MILLER

Fallen power lines added to the hazards faced by firemen as streams were brought to play on the raging inferno—*Lewistown* Sun-Journal *photo by Philbrick*

ON THE EVENING of November 2, 1956, a junior rifle club was shooting on the National Guard range in the basement of the armory in Auburn, Maine. About 9:00 p.m., some of the members of the club noticed the smell of smoke but little attention was paid to the warning sign. At 9:30 p.m., as the armory was closing, the same odor of smoke was again detected but a check of the building revealed nothing and the premises were locked for the night without the fire department being notified.

At 3:40 a.m., a passer-by noticed a small group of people watching a fire burning inside the armory building. He asked if the fire department had been called and was told that none of the group knew where to locate a telephone at such an early hour in the morning, this despite the fact that a red light designated a fire alarm box only 50 feet away. He then ran two blocks to the Central Fire Station and aroused the firemen. At the same time a telephone alarm was received in the dispatcher's office.

A first-alarm assignment was dispatched and Box 141, Hampshire and Troy Streets, was transmitted from the

dispatcher's desk. Responding were Engines 3, 4 and 6; Ladder 1, Squad 1 and Captain Penley, acting deputy chief for the night. Immediately upon arrival, Acting Chief Penley radioed for a third alarm. This brought Auburn Engines 1, 2 and 5, plus an automatic mutual aid assignment from Lewiston Central Station which is 1½ miles away. Lewiston Engines 2, 3 and 6 and Ladder 1 responded to the call.

Responding at the same time were Chief Miller of Auburn and Deputy Chiefs Doucette and Verderber of the Lewiston department. Upon arrival, Chief Miller radioed for the Mechanics Falls Fire Department under Chief Herrick, nine miles distant, and the Norway Fire Department under Chief Luck, 19 miles away. Both responded with 750 gpm pumpers. At the same time a 5-5 signal was ordered. This notified the water department to put the high pressure mains in service for a general alarm. At 3:35 a.m., Lewiston Engine 4 and Sabattus Fire Company under Chief Winslow, were moved into the central station to cover.

The first companies found the armory beyond saving and the fire had gained control of the building at 46 and 48 Hampshire Street, housing a restaurant and the District Boy Scout offices. Across Troy Street to the east, a huge 200-foot long warehouse containing hay, grain, farm supplies, etc., was burning from the middle towards both ends. There were no fire walls separating the different occupants and the attic or loft was completely open from end to end. Hand lines were immediately brought into play and the squad and aerial truck set up heavy streams.

A giant shoe factory 150 feet north of the main fire was being heated rapidly. Window glass was cracking in this exposure and tar was running down the face of the building from the roof above the fourth story. Fortunately this factory was fitted with a manually-operated water curtain which was immediately turned on, allowing the small fire force to direct its efforts to the other exposures.

Child rescued from apartment

Directly in front of the armory was a 3½-story wood grinding mill which is tied to a dry cleaning plant and a T-shaped shoe factory. This building was smoking badly and every window glass was yellowed and cracked. A single hand line was brought to play on the exposure and saved it from further damage.

So intense was the heat that tar from asphalt shingles ran down the face of a four-story frame apartment house west of the main fire and burned back up to the roof. This building and all other apartment houses in the area were ordered evacuated. In all, 25 families were removed to safety. In the excitement and confusion, a small girl was forgotten by her parents and a fire fighter returned to the building and carried the child out.

City power cut off

By this time high voltage power lines were being burned off their supporting poles and endangering the firemen who were using hand lines in the street. Chief Miller ordered the Central Maine Power Company to shut down all power in the city. With this danger removed, all hand lines were moved in as close as possible to make the attack more effective. With the power off, the Central Station radio was out of commission. Chief Miller then sent his car back to the station and the mobile unit was used for liaison between headquarters and the fire ground.

The entire fire was eventually cut off by the use of eighteen 2½-inch lines. Auburn's Aerial 1 originally tried to place its ladder pipe in operation directly on the armory, but the heat drove it back to a position across from 50 Hampshire Street. From this point it was possible to rake nearly all the western exposures and it did an effective job in holding the fire on this side. Squad 1 stood its ground in front of the armory with a mounted deck gun supplied by a 1,000 gpm

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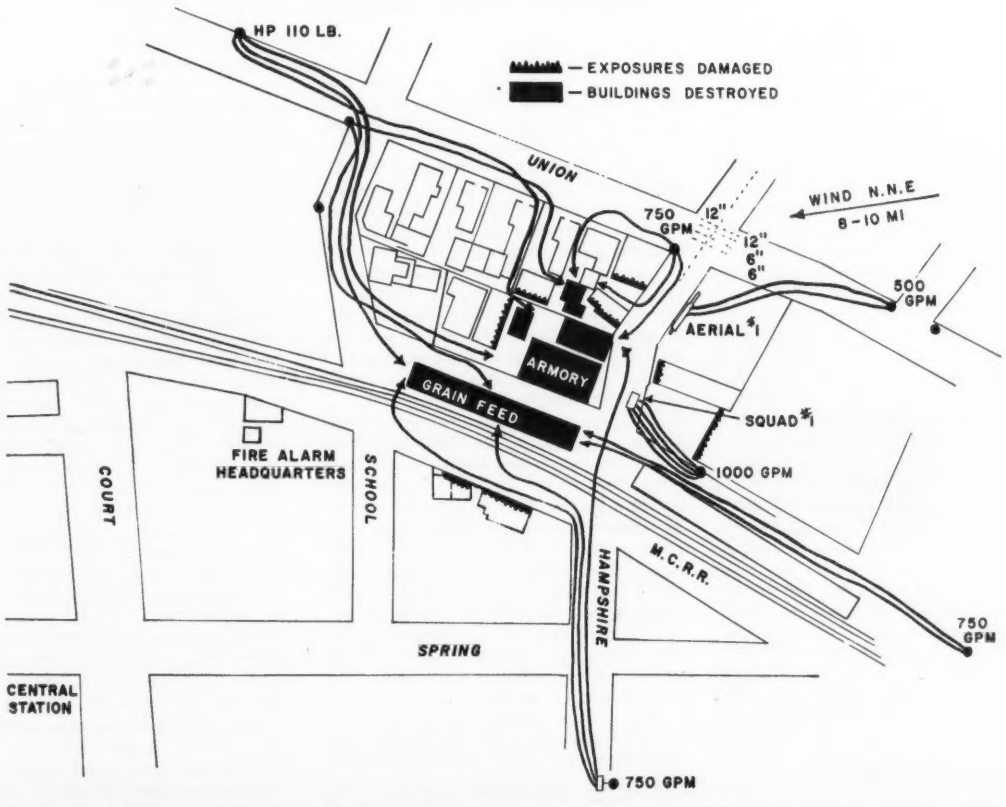
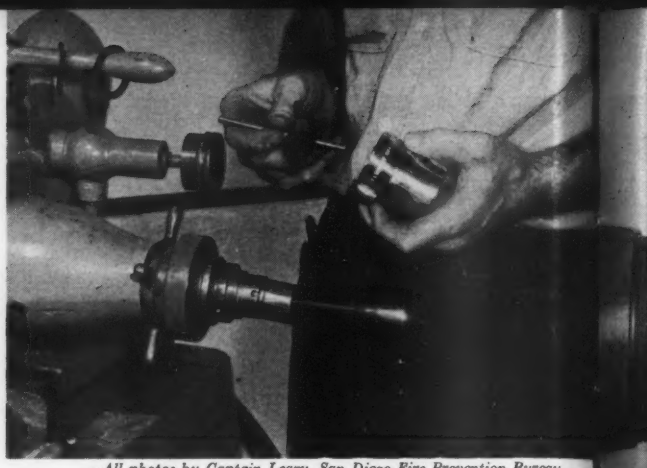


Layout of the fireground. The dark areas show buildings destroyed; the heavy lines show exposures damaged. A total of 18 lines were used to cut off and extinguish the fire



—*All photos by Captain Leary, San Diego Fire Prevention Bureau*

1. Making a straight cut and trimming off the loose strands are important steps in recoupling. A heavy, razor-sharp knife does the job quickly

2. Measuring the distance from the face of the coupling to the front end of the hose bowl is facilitated by the special depth gauge

More Effective Fire Hose Recoupling

How the San Diego Fire Department obtains improved results in maintaining its fire hose

By LIEUTENANT JEROME DRILLING*

FIRE HOSE IS ONE ITEM of equipment in every fire department that receives practically constant use. Because of its importance in fire fighting and the investment involved, proper care is essential at all times. However, very little material has been published in recent years on the repair of hose following injury or service failure. This article discusses one important phase of hose maintenance—the subject of attaching expansion ring couplings to fire hose—in hope that the information will add to the somewhat sketchy data that is presently available.

Hose is a costly item in a fire chief's budget. It follows then, that to restore hose to serviceable condition by cutting out a damaged section and re-attaching the coupling is well worth the required time and effort. The damaged section must, of course, be near enough to the end of the hose to maintain a reasonable length.

Chief G. E. Courser, of the San Diego Fire Department, has provided the proper tools and equipment to keep his department's hose in the best possible condition. The following notes are the result of experience with fire hose, and problems connected with its maintenance.

Coupling fundamentals

A completed length of hose consists of the specified footage to which will be attached a set of couplings. A male tailpiece with external threads and a tailpiece in combination with a female swivel section having internal threads, make up this set. Each coupling is provided with a hose bowl, a hose bowl gasket seat, and a waterway. The female swivel section is also machined for a coupling gasket, or washer.

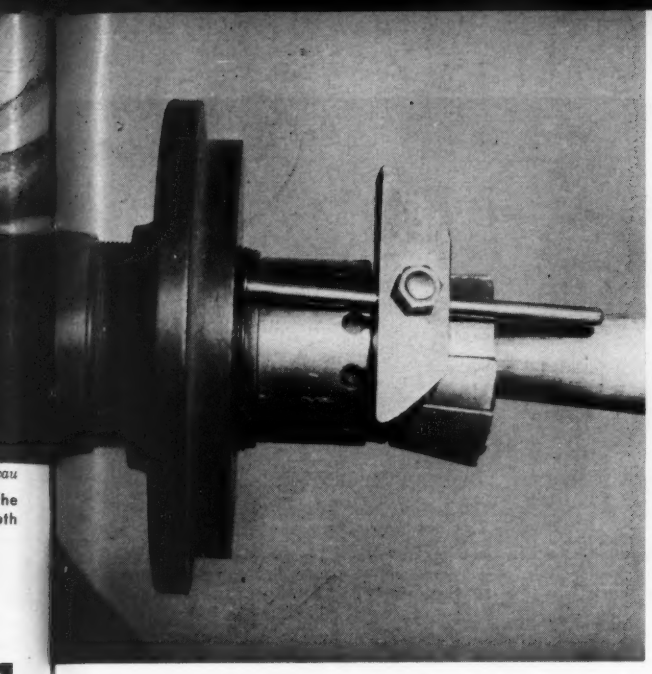
The machine used for attaching couplings to hose, consists basically of a tapered mandrel which is pulled through a set of segments. Several types are available. The hand-screw type, the hydraulic hand-pump type, and the hydraulic electric-powered type. The hydraulic types are also available with hose testing connections. The San Diego Fire Department uses the hydraulic electric-powered type for testing all new hose before acceptance, recoupling hose, testing after recoupling, and for the annual pressure test of all hose. Each recoupled length must withstand a 200 psi test before being placed back into service. Since there is but one proper method of attaching couplings of the expansion ring type to fire hose, the basic rules outlined in this article will apply, regardless of the type of tool or machine used.

The interior surface of a hose bowl is corrugated. This will enable the coupling to obtain a firm grip on the outer jacket of the hose to which it is attached. When the tapered mandrel of the expanding tool is pulled through the set of segments, it will cause them to expand, or spread, increasing their diameter. A brass expansion ring placed over these segments will be expanded inside the hose, exerting an outward pressure against the interior of the hose, and the hose bowl.

Inside the hose bowl, adjacent to the waterway, is a machined seat for the hose bowl gasket. The squarely cut end of the hose, when placed in the hose bowl, will butt against this gasket. A correctly placed expanded brass ring inside the hose will overlap onto this gasket, forming a seal between the ring and waterway. This prevents water from reaching the ends of the hose jacket. Hose bowl gaskets must be of a medium soft rubber and free of any fabric. Their inside diameter should be one sixteenth of an inch larger than the inside diameter of the waterway, to permit free passage of the brass expansion ring. This will also reduce the possibility of the edge of the gasket projecting into the waterway after the ring has been expanded.

Brass expansion rings are made of special alloys to enable them to expand at least 20 per cent beyond their original diameter without breaking and both edges are beveled to avoid cutting the rubber. The depth of the hose bowl will determine the proper length of the ring

*Lt. Drilling makes all annual tests and necessary repairs of the more than 90,000 feet of service hose maintained by the San Diego fire department. He and Battalion Chief Robert Ely, in charge of the department shops, are recognized as experts in this important field.



3. The stop on the expanding machine is adjusted to the proper position by means of the special gauge. The simple tool was made in the San Diego shops

4. A power expander quickly and efficiently attaches coupling to fire hose. Hose may then be tested to proper pressure by means of a special connection to expander machine

to be used. To enable a coupling to obtain the best possible grip on the outer jacket of the hose the ring should be kept inside the last corrugation at the tail end of the hose bowl. To permit the hose bowl gasket to form a watertight seal between the end of the ring and the waterway a one sixteenth of an inch space should be allowed at this point. The expanded ring, overlapped on this gasket, will force the gasket to fill in the one sixteenth of an inch space.

To accomplish this, it is necessary for the ring to be in its correct position inside the hose. An adjustable spacing stop, which is part of the expanding mechanism of the machine, can be used to accurately and automatically do this. The face of the coupling will butt against this stop. The distance between the face of the coupling to just behind the waterway, adding one sixteenth of an inch, will then be the distance between the segments and the adjusted spacing stop. Chief Ely, the master mechanic, has designed an adjustable "T" shaped tool to measure this distance. It has proven to be very satisfactory.

Recoupling procedure

When the hose, rubber lining and hose bowl gasket are in good condition, and the hose has not slipped in the coupling, a leak at the tail end of the coupling can usually be corrected by expanding the ring more. Should this method fail to stop the leak, cut the coupling off the hose with a sturdy knife. Hose that has been in service for years, will in all probability, have weather-checked rubber immediately behind the coupling. Cutting off a few more inches at this time will perhaps prevent another leak in the near future.

When preparing the end of the hose for recoupling, make a clean cut at 90 degrees. Trim off all loose ends of cotton or fabric. Repair any damage that has been done to the coupling or threads, or replace with a good coupling, then proceed as follows, step by step:

1. With either the ring extracting attachment, or a cape chisel and hammer, remove the old ring, hose and hose bowl gasket from the hose bowl. With the blade of a screwdriver, or other suitable instrument, clean out the hose bowl gasket seat.

2. Attach the proper size segments to the expanding machine.

3. Measure the distance from the face of the coupling to just behind the waterway, adding one sixteenth of an inch; set the spacing stop accordingly.

4. Check the length of the brass ring against the depth of the hose bowl, then place the ring over the segments.

5. Place a new hose bowl gasket in its seat inside the hose bowl.

6. Insert the hose into the hose bowl, until it butts against the hose bowl gasket. The outside diameter of the hose, and the inside diameter of the hose bowl should be about the same to form a snug fit.

7. By grasping the hose, *not the coupling*, slide this assembly over the brass ring until the face of the coupling rests squarely against the spacing stop. Occasionally the inside diameter of the hose will be small and some difficulty will be experienced when sliding the hose and coupling assembly over the ring. In this case, remove the ring from the segments, then place the coupling and hose-assembly over the segments and apply pressure. Release the pressure, place the ring over the segments and quickly slide the assembly over the ring. The use of rubber lubricant on the lining of the hose may also overcome this difficulty.

8. With the hose and coupling in place, the brass ring can now be expanded, at

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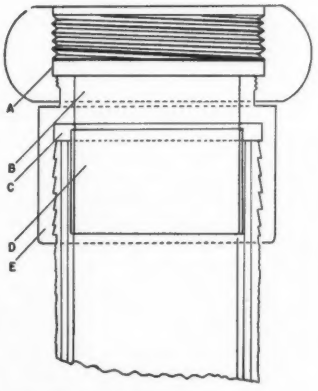
A Cut-away diagram of a female coupling



A. Swivel gasket or washer
B. Waterway
C. Hose bowl gasket
D. Expanded brass ring
E. Hose bowl

OVERHAUL AND SALVAGE . . . IN THEORY AND PRACTICE

By ROI B. WOOLLEY

PART XX

—Photo by Lieutenant Robert Kennedy, Philadelphia Fire Bureau

Prompt, efficient venting during fire operations at this Reading Terminal blaze, Philadelphia, not only reduced need for post-fire salvage but permitted the big building's offices and stores to be back in business with minimum time lag. Note use of both ejectors and circulators

Reducing Smoke-Odor Damage in Advanced Salvage Operations

THE SUBJECT of property damage due to smoke and/or odors is one which has received far too little study, from the viewpoint of the salvageman.

We know that smoke is largely a product of combustion; that smoke gives off different densities, colors and odors, as well as irritants, depending upon a number of factors, the most important being the material that is burning. We know that under certain conditions, smoke can cause almost as much property damage as fire itself.

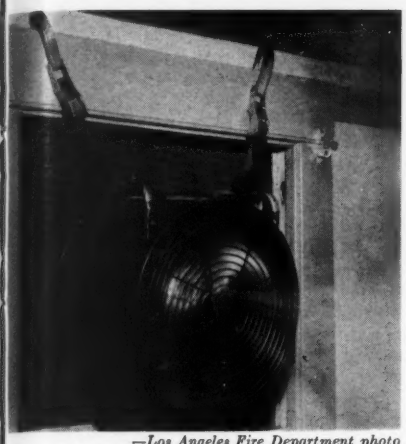
What we don't know is what makes one substance differ in smell from another. In fact, we don't know much about the "sense of smell." As D. H. Radler* says: "For sheer mystery, few things compete with the sense of smell. How it works, only the nose knows . . . and so far, it has kept the secret well."

We don't know too much about the relation of certain odors (not always related to smoke) to certain kinds of merchandise and raw materials. Certain gases give off odors which are colorless but which may have ruinous affect upon foodstuffs, for example. Salvage operations may require rapid removal of such gases and odors from the property involved—and it may be quite an undertaking, although no fire is present. Practically every fire department has been called upon to ventilate buildings of odors emanating from leaky refrigerator systems, faulty heating plants, spilled chemicals and the like. Perhaps not all these departments consider this "salvage" in the strict sense of the word, but nevertheless, it is.

Loss from smoke, fumes and odors is not predictable. It is difficult to anticipate it and prepare defensive measures. Among the factors which govern it are: type and kind of occupancy, the building and contents involved, the "damageability" and "salvageability" of stocks and furnishings (qualities of absorption, etc.), the fire fighting and protective measures that may be required in the operation, the weather, etc.

Dense smoke from December downtown Fort Dodge, Iowa, fire which destroyed three 80-year-old buildings, drove 100 families from apartments and burned five hours before being controlled by firemen from four towns. Smoke caused considerable damage over a wide area

* Science News Letter, December 10, 1955 "Learning Why Noses Know."



—*Los Angeles Fire Department photo*

Type of electric-powered circulator widely used by fire departments to rid occupancies of smoke and fumes

Unlike water, smoke and accompanying odors can find their way into all parts of a building, and even penetrate the contents of containers believed to be water and airtight. How many persons have experienced the contamination of a supposedly tight bottle of liquor by common moth balls and gum camphor? Smoke-carrying odors may penetrate structures and cause damage considerable distances from the actual fires which generate them. All of this complicates the problem of salvage.

Odors and smoke deposits are the unpleasant aftermaths of nearly every fire. Depending upon the circumstances, these odors may have a serious effect on the well-being of the individual as well as the prosperity of the enterprise, should it be a business establishment that is involved.

Smoke damage claims against insurance contracts have been a frequent source of controversy, irritation and litigation, both to the insured and to the company underwriting the insurance risk. This has been especially true where the only damage was the result of smoke and/or odors finding their way into exposed property.

It is because of these and other imponderables which involve the whole broad problem of smoke and odor removal, that the subject has received so little consideration and study. However, it should not be assumed by fire forces performing salvage work that odor removal is impossible or that excellent results cannot be obtained in even the most modest of salvage operations.

Smoke-odor damage certainly can be reduced in some fires involving residences and small commercial establishments, with a minimum amount of effort and service time of fire departments. Small as well as large fire departments and salvage squads can make good use of modern chemical smoke deodorants, with proper coaching and equipment. Even without such facilities, by scientific use of ventilating devices, air movers and smoke ejectors excellent results may be obtained in minimizing smoke-odor damage.

It is true that deodorizing tasks of greater magnitude require a broader technological knowledge and facilities, than are available in the average fire department. Unfortunately, most fire department budgets provide little funds for salvage operations of any kind—and no wherewithall for dealing with the scientific problem of odor removal.

Unquestionably the key to smoke and odor removal is primarily ventilation. And, as has been pointed out earlier in this series on salvage, ventilation for salvage actually should begin with the first contact with the fire. In fact, many authorities consider ventilation, as pertaining to smoke and odor removal, something that should be "built into" the building at the outset. Many architects and builders agree, and there are concerns which specialize in installing quick-acting vents, smoke ducts and other means of removing or trapping smoke and attendant odors while "shutting off" fire at the same time.

The problem facing salvagemen today, however, is one of venting structures in order to make rescues and further fire attack so as to facilitate to the fullest degree later salvage operations, including smoke-odor removal. This may sound complicated but actually it means opening up an involved building in such manner as will rid it of the most smoke, fumes and accompanying odors, with least risk of involvement of adjoining or neighboring properties. Smoke-carrying odors may travel a long way on the wind. If it is necessary to so vent at the outset of attack that down-wind structures may be involved, all possible effort should be made immediately to see that the exposures to leeward are "buttoned up" and that measures to exhaust or draw off contamination are made ready in such properties as the officer in charge of salvage may believe will most require it.

In this connection it is well to repeat earlier recommendations, to wit: The officer in charge of salvage should contact the officer in charge of fighting the fire and inquire whether, and if so, what ventilation is going to be required, or that may be carried out.

Under no circumstances should any attempt at ventilating fire-involved premises be made except with the specific approval of the officer in charge of the fire, and then only in the manner required by him. Uncontrolled ventilation may cause the fire to get out of hand—and even result in injuries or death to personnel.

Use of deodorants

The application by the fire service of deodorants to remove, or counteract smoke or gas odors is fairly recent. The subject was first broached to the nation's fire service in an article in FIRE ENGINEERING by the former chief of the Fargo, N. D., Fire Department, Fred J. Wells, entitled "How One Fire Department Reduces Smoke Damage."

Chief Wells was one of the pioneers in the use of deodorants but he combined the application of chemicals with rapid and thorough structural ventilation. He believed that before odor removal or neutralization can begin, the odor-carrying smoke must first be removed. He found that the temperature of smoke had a bearing upon its penetration into materials, somewhat as does moisture; also that water can carry chemical and other contaminants into materials and these cannot easily be removed or neutralized by any existing salvage methods.

Air movers, properly applied, may be counted upon to exhaust the smoke contents of a structure, as was described in "Fire Service Ventilation in Principle and Practice" Part I, November, 1953, by Roi B. Woolley. Much of the secret is early application, particularly where the smoke contains large sooty, tarry particles. In normal dwelling fires, such as occur in attics, the application of air circulators, ejectors and injectors as quickly as possi-

Prompt salvage efforts may reduce smoke and water damage. Here canned fish is being salvaged from top floor ruins of a Monterey, Cal., warehouse immediately following a destructive fire. Foodstuffs are generally vulnerable to smoke

ble will not only speed the fire attack but will lessen the opportunity for smoke-odors to deeply penetrate household materials and furnishings. Application of air movers *after* the fire has been extinguished, will further lessen the smoke damage. Just how long this effort should be kept up after salvaging operations have been completed is problematical. In incipient fires it is possible to so rid the house of odors that the application of even simple household chlorophyl remedies may complete the smoke-odor removal operation started by the salvagemen.

Chemical deodorizing

Various chemical preparations have been tried in the attempts to remove or actually counteract some odors following fire. Generally this was done with hand sprayers and the vapors were distributed throughout the building area by means of the power blowers used to remove smoke or force fresh air into buildings. While the operations in many instances gave the experimenters hope, in some cases a tell-tale odor remained after application. Repeated spraying, furthermore was not always sufficient.

The main reason was that chlorophyl preparations are primarily atmospheric deodorants. Where the smoke molecules are deeply embedded in material, it is questionable whether common odor control materials will be effective. This led some fire department and salvage officials to believe that it might be advisable to cut out most of the charred wood after a fire before deodorizing.

According to some operators this deep penetration and lack of understanding of the preparations used in odor control led to overapplication, resulting in stains that were difficult to remove from other than impervious surfaces.

Most professional odor removal technicians use chemicals that do not contain chlorophyl. There are differences of opinion among them concerning the best methods to be employed and the results expected, but all agree that a basic knowledge of the theory of deodorization is essential to successful operations.

The two major points of difference have to do with (1) actual removal of the smoke molecules formed during combustion, and (2) odor-masking by powerful chemical agents. The latter cancels one odor by superimposing another and more powerful odor on the original.

Research by proponents of the first method has led to these observations: The source of odor is a sub-microscopic ball containing a mixture of oils, tars, water and soot. It is formed at the point of combustion when volatiles condense on soot particles as they rise out of the flame. These smoke odor molecules float about an area in clouds of smoke and settle in layers on all exposed surfaces.

The object of the odor removal technique is to free the odor molecules into the atmosphere so they can be removed by ventilation. This is done by "dry-fogging" the contaminated area with a chemical solution which attaches itself to the same surfaces as the smoke odor particles. Surface-active agents in the chemical break down the smoke odor particles and release the smoke particles into the air. The volatile oils, the prime odor sources, are released by a combination of evaporation and displacement action. Once airborne, power exhaust fans remove the particles from the premises.

The manufacturers of these chemicals claim they are non-toxic, have no flash point and will not stain. They point out however, that they are not cleaning agents and will not remove soot or smudge. This must be done by any recognized washing or dry-cleaning process.

Odor "masking" by counterirritants

Followers of the masking method dispute some of the points previously mentioned. According to one authority on the subject, odor masking is "the process of cancelling one odor by superimposing another odor to create a more overpowering sensation, preferably pleasant." The masking agent does not alter the composition of the pre-existing odors, but simply covers such odors during the period of its addition to and presence in the air.

One of the chemicals prepared for this purpose is mixed with water and then sprayed freely over the burned area. If water spray cannot be used, the application is made by saturating asbestos fibers with the chemical and hanging them in the window areas or ventilating systems. This allows the masking odor to penetrate the interior. It can also be used by impregnating sawdust or asbestos crumbs or similar absorbent materials and spreading this over the burnt area.

It is pointed out that no single procedure will apply to all types of incidents. No method is perfect but encouraging results can be obtained in nearly all cases. Some experts suggest that if an air conditioning or other ventilating system is present, it should be employed to speed emergency. □□

The Editors wish to acknowledge the cooperation of Airkem, Inc. and Rhodia, Inc., both of New York City, for their information on chemical deodorizing.

Huntington Beach Has New Giant

The city of Huntington Beach, Calif., is one of the richest tideland oil producing centers in the country. Nevertheless, its very riches of oil fields and large oil leases produce fire hazards—particularly in areas where there is insufficient water with which to fight fires.

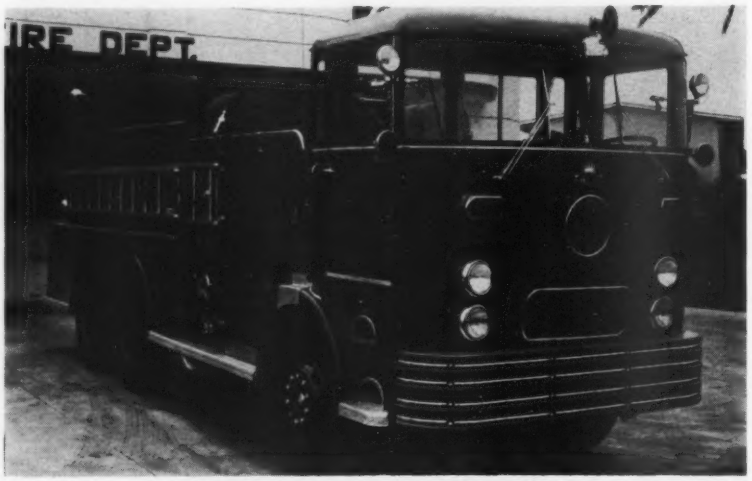
Conscious of the need for a piece of fire fighting equipment that would be able to carry sufficient water with it for quick attack and yet, if need be, to maintain the attack in volume, Fire Chief D. G. Higgins set about developing a unit of apparatus that would meet the particular needs of his department.

After two years of planning and engineering the Chief came up with the specifications for such a unit. He has the satisfaction of seeing his ideas translated into what, in many ways, is one of the most unique pieces of fire fighting equipment to be introduced in some time. Actual producer of the fire fighting mechanical giant is the Crown Coach Corporation.

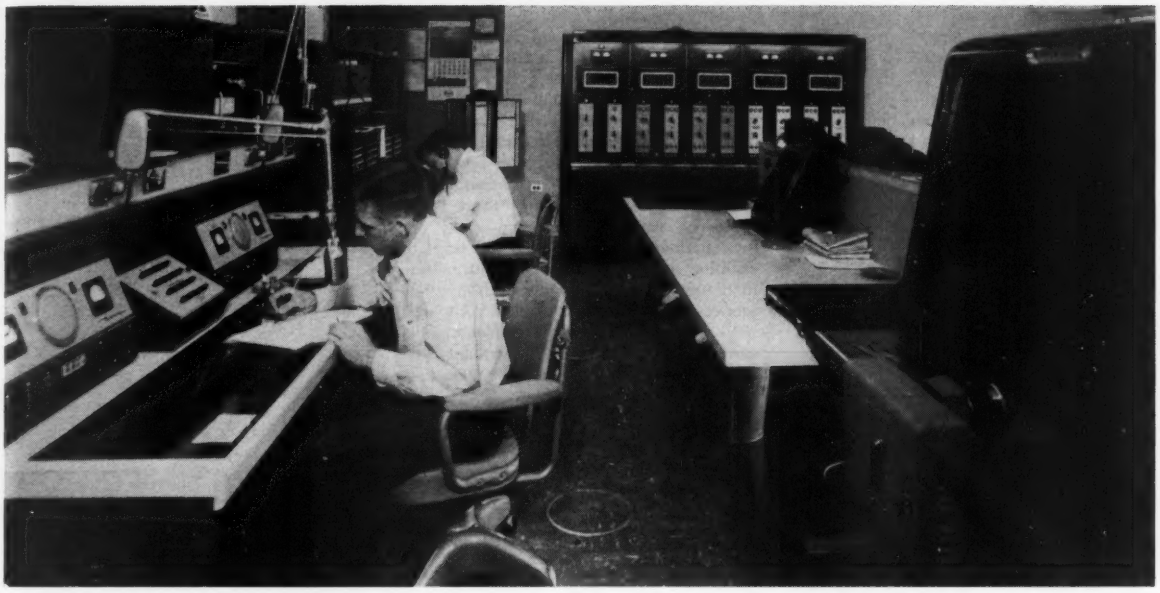
Chief Higgins' husky "brain child" measures 28 feet in length by 108-inches in height, 96 inches in width and, fully loaded, it weighs over 25 tons. It is powered by a 296 h.p. engine and carries 100 gallons of fuel. Among its other features are air brakes and power steering.

The unit has a 250 gpm pump connected to a 2500 gallon tank by a 4-inch pipe fitted with a 4-inch fast-acting valve and swing-check valves. A 150 gpm booster pumper is connected to the power take-off and either pump may be used to supply the electric booster reels. The piping to the booster reels is fitted with check valves. The 10-gauge tank is

Continued on page 81



Huntington Beach's 2,500 gpm pumper-tanker



The surveyor, on which microfilm street maps of the 615-square mile are enlarged, is shown at the right of this view of the Baltimore County Fire Headquarters central alarm and control room

Fighting Fire with Microfilm

How a handful of ordinary file cards, with microfilm mounted in apertures, guides routing and dispatching of equipment in Baltimore County, Md.

A HANDFUL of 3 by 5-inch file cards, on which are mounted microfilmed maps of a 615 square mile area, serves as the basic record in the unusual control system installed by the Baltimore County Fire Department, of which Chief Anthony Orban is the head.

The department, newly enlarged by a multi-building headquarters and training center at Towson, Maryland, has more than 100 fire engines, plus ambulance, emergency, rescue and other mobile units.

In addition to fire prevention and fire fighting, the department provides accident and ambulance service, road maps, rescue squads, and performs just about every emergency type of function required for a community of some 380,000 people living in the horseshoe-shaped area that surrounds the city of Baltimore.

Why centralized control is needed

The Baltimore County organization comprises 10 fire houses, 15 established or paid companies and 30 volunteer companies, each with its special equipment, consisting of fire engines and all the supplementary rolling stock needed to go with them. All mobile units are equipped with two-way communications. There are 10 chiefs in the field with eight battalion chiefs. All communications are directed to and redirected from the central facility at the fire headquarters in Towson.

Planned routing for speed, safety

In recent months the department has handled from 144 to 456 actual fire calls per month, not counting a negligible number of false alarms, and the central communications station has faced the problem of eliminating any possible delay that might occur between an alarm and getting equipment to the specific place of emergency. On Christmas Day, 1955, between 8:00 a.m. and 3:15 p.m., 45 calls were received.

Naturally, with such extensive activity and so wide an area to be covered, the actual location of the point of emergency and the shortest way to reach it are of paramount importance. This importance is accentuated by the fact that in many cases equipment comes from several different points and it is imperative that non-conflicting paths of approach be used wherever possible to avoid disastrous collisions, such as may happen when routing is not directed from a central point.

It is significant that in this day of electronics, jet propulsion and atomic power, a few tiny pieces of film on cards should be the instruments through which maximum speed has been obtained, and the application of the control system made possible by these cards takes place in a space less than that occupied by two ordinary office desks.

Full routing directions in seconds

Before discussing briefly the method by which about 40 maps of the Baltimore County area are reproduced on microfilm and mounted on aperature cards for quick reference, a bit about *how* the control system functions:

The easiest way to visualize these 40

cards in action is to trace a fire call through the central headquarters. The call is received by an operator on duty and is immediately put on the central communications siren system so that the nearest companies are alerted before anything else takes place. The operator then turns immediately to his index where over 35,000 streets are properly indexed and in immediate view. These indexes, on a rotary file, give the number of the map-on-film mounted on a small 3 x 5-inch film card.

The card is quickly inserted into a microfilm viewer which projects the map up to 500 times its film size on a 24 x 36-inch screen so that it is immediately readable by the fire station communication directors. While the dispatcher looks at the map the nearest fire fighting unit that has to answer the alarm is called and given the streets of access, the left and right turns and the immediate location on the street that must be reached.

Inexpensive, easy to operate

The mapping and routing or dispatching control equipment used in Baltimore County's new fire headquarters installation is both inexpensive and easy to operate.

First step in the procedure, that of reproducing the original map, diagram, engineering drawing, etc., on a 35 mm film, is handled by a commercial microfilming service center.

Next the film is cut and mounted in the special glassine-framed apertures of ordinary 3 x 5-inch file cards.

Once the film is mounted in the card apertures, the system is ready for use. As referrals to the maps, diagrams, engineering drawings, etc., are to be made, the card is extracted, slipped into a viewer and the light switch is thrown, reproducing the image on a large screen.

Viewers range from desktop units to the large model shown at the right of the Baltimore County Central Alarm and Control Room photo.

Before the system of activating frames of microfilm by mounting them in card apertures was adopted, the actual maps were filed where they could be readily obtained, spread out and examined. The finding of the maps, no matter how carefully filed, and the cumbersome mechanics of putting them where they could be carefully examined need not be explained to anyone who has tried to examine and refold a simple automobile road map while at some puzzling intersection. When this procedure is compared with the selection of a 3 x 5-inch file card inserted under an enlargement type viewer, one can quickly sense the new facility without even seeing it.

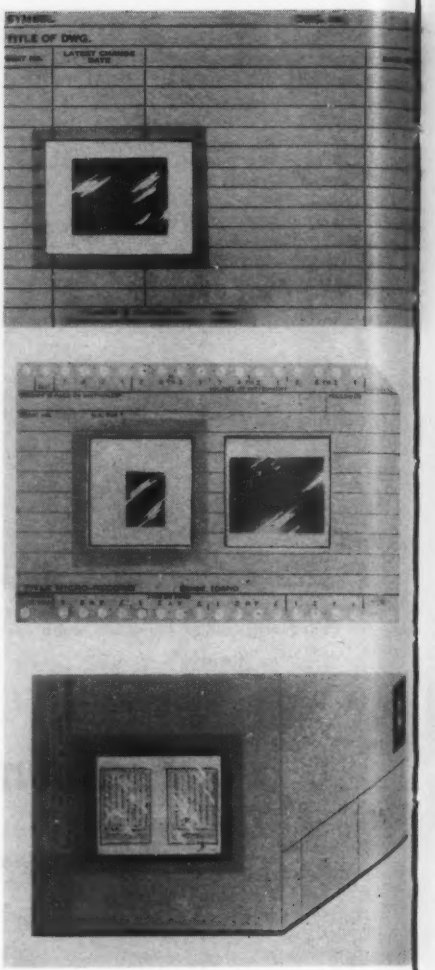
Potential savings high

A few statistics will convey the magnitude of the savings that may be effected by the application of this ingenious procedure.

There is an average of 200 calls to the fire center each month and the average property loss on each one of these calls represents an estimated $200 or a total of $40,000 a month.

No one can, of course, say just what difference a matter of minutes might make in answering calls of this nature, but it does not seem to be any stretch of the imagination to assume that in the early stages of a fire a matter of some one or two minutes saved in issuing instructions, to say nothing of these instructions being strictly accurate, could mean a savings of 10 to 20 per cent in fire losses even if the savings in human life were to be completely ignored.

Carrying these figures to a hypothetical conclusion indicates a saving amounting to some $4,000 per month or $48,000 per year. And this has nothing to do with lives that may have been saved or serious collisions that may have been avoided in getting to a fire, accident or other emergency. □□



Highways, streets, lanes, water facilities and alarm systems for the 615-square mile area are mapped and then reduced to less than 50 microfilmed images. On cards such as these, they are fully indexed and easy to locate in a couple of seconds

The photographs used in connection with this story have been furnished FIRE ENGINEERING *by Filmsort Division of Dexter Folder Co.*

This view of the surveyor shows how a map, engineering drawing or other document is magnified to a screen area 24 by 36 inches

Hunt for Draft Points

The Weston, Conn., Volunteer Fire Department has appointed a committee to determine the best areas for water holes. The measure was taken recently because there are only a few places presently available in the town where tank trucks can draw water.

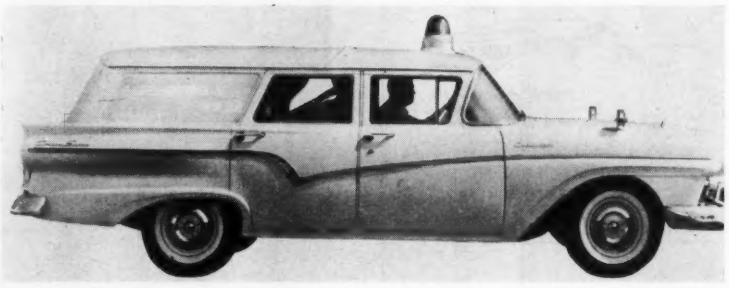
Fire Chief John O' Brien said that the increase of building in the town has caused the department to search for new water sources for use in case of fire. The water hole is created by digging a small hole at a source of water, such as a small stream. The reservoir thus created is a convenient draft point for obtaining water.

WHAT'S NEW

Among the Manufacturers

- products
- processes
- personalities

Station Wagon Conversion to Ambulance



The Automotive Conversion Corporation, Birmingham, Mich., provides a complete conversion for Ford or Mercury station wagon ambulances, called the "Amblewagon." The converted unit preserves the exterior appearance of the wagon while enlarging the rear opening and increasing the interior head room. The inside changes permit the use of a full length 75-inch cot, prone or in the sit-up position, and a stretcher for a second patient.

The unit can be reconverted to a standard station wagon in a few minutes without the use of tools. The "Amblewagon" is sold through Ford dealers.

Motorola Marketing Promotions

Three marketing promotions in the Communications and Electronics Division of Motorola Inc. are announced by Harold A. Jones, director of sales.

Robert L. Borchardt has been named manager of the Technical Information Center succeeding Mr. Jones who was promoted to his present position earlier this year.

Frederick W. Alexander has been promoted from technical editor to advertising manager, replacing Reginald Mars, who resigned from the company to enter private business.

Robert E. Newlin has been named to the newly created post of product promotion supervisor. He will be responsible for coordinating the sales promotional activities of the communications product line.

Homelite Centrifugal Pressure Pump

A new centrifugal pressure pump has just been announced by Homelite, Port Chester, New York. The Model 24S3-1P is a high volume pressure pump, designed specifically for fire departments, contractors and builders, farmers, utilities and general industries. It has a capacity range of 55 gallons of water per minute at 70 pounds pressure to 205 gallons of water per minute at open discharge.

Weighing only 107 pounds, it is easily carried to any location. Self-priming, it will develop pressure in 15 seconds at 5-foot suction lift and 45 seconds at 15-foot suction lift. It has a guaranteed suction lift of 28 feet, a total head of 185 feet, including friction, and comes equipped with 3-inch suction and discharge fittings. For further information write the manufacturer.

Apparatus Literature

A new four-page fire apparatus brochure, featuring custom-engineered pumpers, crash trucks, tankers, rescue wagons, hose trucks and aerial ladder equipment may be obtained by writing to the Fire Apparatus Division, Four Wheel Drive Auto Company, Clintonville, Wis.

Chicago Gets New IHC Trucks

Chicago Mayor Richard J. Daley (in cab) accepts key to new International high pressure fire truck from International Harvester Company President P. V. Moulder, as Chicago Fire Commissioner Anthony J. Mullaney observes the formal delivery. Five of the new units were added to Chicago's Fire Department in ceremonies which highlighted the city's observance of Fire Prevention Week and the 85th anniversary of the Chicago Fire. The new trucks are International cab-over-engine CO-196 models, 135-inch wheelbase, with 212 h.p. Royal Red Diamond engine. The high pressure units mount 3½-inch hose and will develop pumping pressure of approximately 150 psi.

New Film On Fog

The third photographic report of the Exploratory Committee on The Application of Water has been made available for distribution. The 16 mm color film covers the activities of the committee, sponsored jointly by the Fire Department Instructor's Conference and the International Fire Service Training Association and under the chairmanship of Emmett T. Cox, senior field officer of the Western Actuarial Bureau, for the period January 1954 to January 1957.

The new film records some of the largest and smallest operations of the committee's investigations. The use of water fog on rural, urban and suburban dwellings; railroad equipment, lumber yards,

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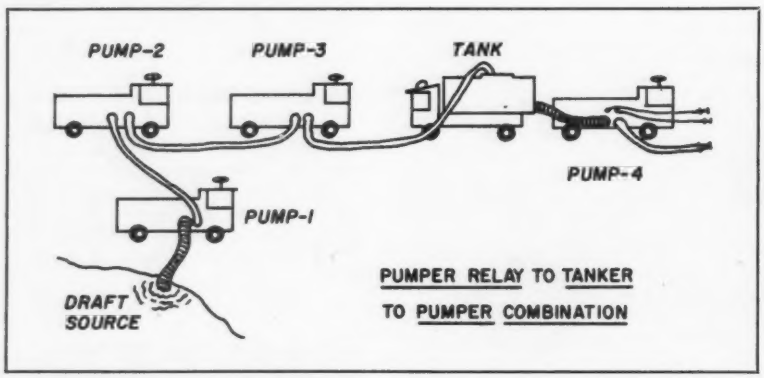
short cuts and gadgets

Using Tanker in Relay



Chief Francis L. Brown, Jefferson County, N. Y., Instructor suggests a novel method of using a tank truck in relay. He reports the idea has been used several times at rural fires in his area.

A standard relay is set up but instead of the relay pumpers supplying another pumper at the fire scene, a tanker is used as a reservoir. The pump supplying the fire lines drafts from the tanker as required by the situation.

Advantages are as follows:

1. Pumper supplying lines may be located closer to fire.
2. Relay pumpers have no effect on nozzle operations.
3. Hose lines at fire can be changed or shut down without affecting relay.
4. Pumper at fire can begin operations immediately from booster tank. Upon arrival of tanker, connection is made to pumper to supply water while relay lines are being laid.
5. In case of breakdown in relay, tanker supply allows continued operations while replacements are made.
6. The pump operator supplying lines may concentrate on fire scene operations.

Personalized Doors for Volunteers

"As a volunteer fireman I am sort of proud of my 'personalized doors,'" writes Vamp R. E. Smith of Kalamazoo, Mich. And all we can say is that if he's as good a fireman as he is artist, the volunteer service needs a lot more like him.

The "Little Firemen" on the garage doors are hand painted in a color scheme that includes red hat and axe, black coat and boots and blue trousers.

For Worn Fire Hydrant Valve Stems

Many fire companies have had the experience of laying to a hydrant only to find that it was out of service due to a worn valve stem nut. By some misuse the corners had been worn off so that a hydrant wrench could not function properly.

To meet such an emergency, include a fairly heavy Stillson wrench in the tool complement carried on the apparatus.

Walter W. Stephen

Blowtorch Fires

Keep an empty bucket handy when you are using a blowtorch. If leaking gasoline blazes up, drop the bucket over the torch to smother the flame.—*Popular Science*

Rear Step Safety Belt

The Hayward, Cal., Fire Department has installed safety belts on all apparatus and has included the men riding the rear step of the pumpers as well as those on the front seats. Chief Matthew Jiminez states, "The hazards of the rear step have been pointed out many times but until a recent tragic accident in our department, not much thought was given to securing the tailboard fireman to the apparatus."

In June 1956, the department suffered it's first on-duty fatality in a 90-year history. The cause of the accident was determined that in all probability the victim was knocked unconcious by striking the apparatus crossbar. He then rolled off the tailboard and was killed.

To safeguard the tailboard man from this danger a combination safety and ladder belt was devised. The short section of the two-piece leather belt is similar to a standard leather ladder and hose strap and at a fire serves the same purpose. The section around the waist of Hayward fireman Richard Donovan, in the illustration, is used as a shoulder strap in manning large hose streams.

The strap is left in position on the crossbar after an alarm; upon responding to the next alarm the tailboard man wraps the long section around his waist and snaps the large hook into the center ring. Upon arrival at the fire scene the belt is removed from the apparatus, separated into the individual parts and is ready for use. Chief Jiminez reports that it does not impair the speed or efficiency of the tailboard man.

The Hayward Department claims no credit for the belt but only for its adaptation as a safety belt. According to Chief Jiminez it was adapted from the San Mateo Department in 1952 which in turn had adapted it from the Seattle Fire Department in 1936.

Let's talk frankly about mildew

Fire hose manufacturers have various "treatments" which they apply to their hose to render it mildew resistant.

So does Eureka . . . and we believe that ours is second to none!

BUT our more than 80 years' experience in the manufacture of the highest-quality municipal fire hose has convinced us that the *only sure way to prevent mildew* in fire hose is to *dry it thoroughly* every time it gets wet. Don't overlook even a light shower or stray spray at a fire which may dampen the unused hose in the truck bed.

It is just as important to keep hose *dry* as it is to keep it *clean*. "Treatment" doesn't take the place of good care in prolonging hose life. At best, it provides mildew *resistance*, not prevention! Such treatment may not *wash out*, but normal abrasion might *wear through* it. So play safe! KEEP YOUR HOSE DRY!

We sincerely hope that this frank word of caution will substitute for costly experience in many fire departments . . . particularly in financially-pressed volunteer companies! Naturally we'll be happy to hear from you if you have anything to add on this subject.

Note how criss-crossing vertical cords tie all plies into a single jacket.

"For greater protection to life and property"

EUREKA FIRE HOSE

Since 1875, Specialists in Manufacturing Circular-Woven Rubber-Lined Fire Hose

1 Market Street • Passaic, New Jersey

Division of United States Rubber

the round table

discussion of current fire department and fire management problems

Placement of Hydrants in Residential Areas

THIS IS THE SECOND installment of the Round Table on placement of hydrants in residential areas.

The generous response from our readers makes it necessary to carry the discussion over to the February issue. The editors will welcome any additional comments on the subject. Address replies to Round Table Editor, FIRE ENGINEERING, 305 East 45th Street, New York 17, N. Y.

Discussion of the Subject

T. R. Tillett, Chief, Bremerton, Wash.: We believe the spacing of hydrants above the 500-foot limit is poor practice if allowed to go as high as 1,000 feet in residential areas. A spacing of 1,000 to 2,000 feet is worse, due to the chances of heavier losses and spread of fire caused by the extra time necessary to lay and charge lines with water. At the present time, we work on a spacing of 600 feet between hydrants.

With the number of aircraft crashes in residential areas increasing, involving a number of houses set afire by flammable liquids, it would be disastrous to have hydrants spaced so that relay pumping or extremely long lines are necessary for every company stretching into the area.

We have to contend with many grass and brush fires in dry weather and while most of these fires are handled with booster lines or pump cans, it is very important that hydrants be available, and that they be spaced less than 1,000 feet apart to give quick water supply for fast-spreading fires which may endanger homes or property.

Our records show a number of delayed alarms for house fires, allowing fires to spread to exposures and making it necessary for responding companies to stretch several lines. On long stretches, the delay and extra work handicap a department short on manpower on engine and truck companies as we are.

I believe that each street should have hydrants spaced so that any property in the area may be covered quickly with minimum length lines by first-due engine companies.

V. L. Crusinberry, Chief, Sioux Falls, S. D.: The City of Sioux Falls has for the past five years, operated on a hydrant program of installations every other block; on the following street, the hydrants would be staggered so that an intersection without a hydrant would be but one block in any direction away from a hydrant.

It is my opinion that hydrants should not be spaced over 1,000 feet apart, or two blocks, which in some cities is less than 1,000 feet. This spacing, I believe, should be practiced especially in northern cities where the temperatures are severe or where the possibility of hydrant failure is greater. If the hydrants were spaced farther apart, more hose than that carried on hose or engine companies would be necessary.

George W. Scarlett, Chief, New Britain, Conn.: Our hydrants are spaced from 500 to 600 feet apart in the residential areas. We find this spacing adds greatly to the speed with which we can get our lines in operation when they are needed. Spacing of 1,000 feet, in my opinion, is too great. An interval of 800 feet should be the limit.

Ralph L. Gump, Chief, Fairmont, W. Va.: I believe the 1,000-foot spacing is adequate.

In many cases the water mains and pressures are not adequate to provide a good fire stream at spacings up to 2,000 feet. In too many instances the mains are dead and small in size, and with perhaps 20 or more years of service are corroded. Often a high-priced fire pump is not able to furnish sufficient water or pressure.

It is my belief that every street should be equipped with a hydrant if it is inhabited. Long lays mean friction loss and loss of time and water.

Odell Benton, Chief, Portsmouth, Va.: The nominal 1,000-foot spacing is adequate for residential fire fighting. However, there are perhaps many cities which compare with mine and are not so fortunate as to have this spacing. It might be well to give thought and timely consideration to one most important feature when we consider residential fire fighting. In this day of progress and community life, we are faced with many of our citizens building homes near the outskirts of our cities. When this occurs and the areas continue to grow, it is not long before schools, churches, super-markets, bank branches and other forms of community necessities quickly appear. This results in fire fighting problems not only for residential structures but others as indicated above.

I do not believe a spacing of 2,000 feet should be allowed for the reasons stated above. In addition, longer lays of hose would thereby cause delay in fire fighting operations, increased pump pressure, motor and pump wear, increasing maintenance and operations cost. Time would also be lost in picking up hose and repacking hose on return to quarters.

Thomas C. Dickson, Chief, Lincoln Park, Mich.: I believe that a nominal 1,000-foot spacing of hydrants is adequate for residential fire fighting. The majority of fire trucks carry a load of from 1,000 to 1,200 feet of hose and if you have a longer span or a hydrant out of order, you are in trouble.

At the present time, the engineer's office sets all hydrants at locations approved by the fire department, and we would object to any change in spacing.

Leonard A. Petrucelli, Chief, Meriden, Conn.: In my opinion, the nominal 1,000-foot spacing of hydrants is adequate, providing the area is not too heavily built up. When residential areas are heavily populated, I believe hydrant spacing should not be over 500 feet.

I am not in favor of allowing hydrant spacing up to 2,000 feet, especially where this spacing would result in some streets having no hydrant. These conditions would seriously delay the fire fighting operation of any fire department, especially in laying hose lines. The delivery of water to the fire in sufficient quantities and as soon as possible is the fire department's best weapon in extinguishing and controlling fires.

Walter L. Hydaker, Chief, Lima, Ohio: I believe a spacing of 1,000 feet is adequate in areas where there are newly built homes. In our older residential areas where there are two and three-story homes, I feel this spacing is too great.

I think a spacing of 2,000 feet might be satisfactory in the new housing projects, but I would insist that hydrants be installed on each street, as it would be much easier to locate the hydrants in time of need.

W. G. Heath, Chief, Tyler, Texas: In my opinion, a spacing of 1,000 feet is adequate for residential fire fighting. I would not be in favor of increasing this to 2,000 feet.

Cosmo L. Cox, Chief, Durham, N. C.: The water department is owned and operated by the City of Durham. During the last ten years there have been tremendous improvements. This included extension of mains into residential districts and the installation of hydrants in sections where there were none before. The fire protection flow is adequate in all areas.

Newly annexed areas which were built before annexation were required to have

Continued on page 76

THIS MONTH'S QUESTIONS

Do you believe the nominal 1,000-foot spacing of hydrants is adequate for residential fire fighting?

Would you be in favor of allowing spacing up to 2,000 feet?

If the greater spacing resulted in some streets being without a hydrant, would you approve?

Easy-starting Sea-Horse 35—one of nine great new models, from 3 to 35 hp.

MORE HEAVY-DUTY POWER for '57

Announcing two new Johnson power classes—with five big Sea-Horses at 18 and 35 HP

Slip-clutch propellers on all nine new models make shear pin changes unnecessary.

Automatic compression relief makes new 35s start as easily as motors half their size.

New 10-ampere generator—accessory for electric-starting 35s. Can't overcharge. Supplies plenty of current for night use.

Here's still more Johnson power for all-weather, everyday use. It's heavy-duty power, delivered at the prop under load, so you know these new Sea-Horses will dig in and deliver. And you don't have to flush them after salt water use because they're fully protected against corrosion. For stall-proof idling, round-trip dependability, authentic economy—for any use that an outboard motor can be put to—you can rely on a Johnson. More than ever this year!

FREE! 1957 Sea-Horse catalog, write: Johnson Motors, 150 Pershing Rd., Waukegan, Illinois. *Division of Outboard Marine Corp. In Canada: manufactured by Johnson Motors, Peterborough, Ontario.*

SWEETEST-RUNNING JOHNSONS EVER

Golden Javelin*	35 hp	$625
Sea-Horse 35*	35 hp	585
Sea-Horse 35	35 hp	495
Sea-Horse 18*	18 hp	475
Sea-Horse 18	18 hp	395
Sea-Horse 10	10 hp	340
Sea-Horse 7½	7½ hp	260
Sea-Horse 5½	5½ hp	230
Sea-Horse 3	3 hp	155

**12-volt electric starting (new quick-charging 10-ampere generator with automatic voltage regulator, available as accessory on first two models listed). Prices f.o.b. factory, subject to change. OBC certified brake hp at 4000 rpm (18s and 35s at 4500).*

A million Sea-Horse owners will tell you JOHNSON KNOWS BEST

FALSE ALARMS

Fire College Stuff

Instructor: "So you said I was a learned jackass, did you?"

Probie: "Oh no, sir, I merely remarked that you were a burro of information.

Then there's the one about the bubble dancer whose career blew up in her face.

Captain Coupling said he wasn't much good at dancing but he knew all the holds.

They were at the drill tower. The Proby had climbed the chain of pompier ladders all right, and reached the top, but there he stuck. "Hey!" he yelled to the instructor. "How do I get down from here."

"Oh that's all right, " came back the reply, "Just shut your eyes and walk around a bit."

"Darling, were you ever a Fuller Brush man?"

"Why no, of course not."

"Well, you better be right now. That's my old man coming up the stairs."

Jobservations

A beetle can lift 500 times his own weight. It isn't known what kind of liquor he drinks.

Who was that lady I seen you outwit last night?

A contributor writes us, "I can feel no change after my vacation—not even a dime."

Two of the Brothers were standing in the station doorway discussing the noonday pedestrians.

"There goes Sophie Church. She's a nicely reared girl."

"Yeah," said the other, "Sure is—and she ain't so bad in front, either."

Harry Hirschfield tells the one about the girl recently arrived in the big city who didn't know why she was so popular.

"Is it my complexion?" she asked.

"No."

"Is it my figure?"

"No."

"Is it my personality?"

"No."

"I give up," said the girl.

"That's it!" exclaimed her admirer.

Kinkchaser says: "Some women help their husband choose their clothes. Others merely pick his pockets."

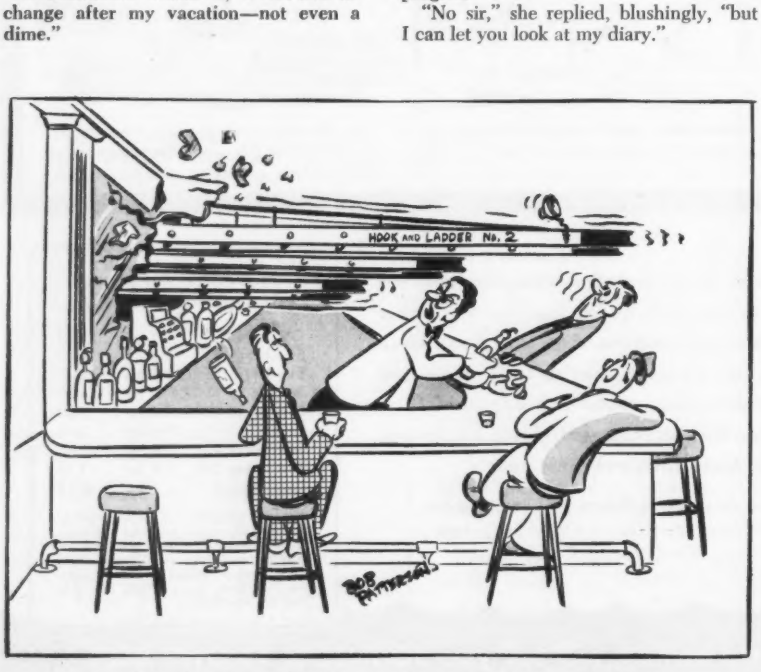
When you help out a man in trouble you can be sure of one thing—he won't forget you the next time he's in trouble.

This isn't such a bad land. It's the only country in the world where a man can drive his own car to the courthouse to pick up his unemployment check.

A fireman got knocked out and was sent to a hospital. A new nurse was detailed to take care of him.

A few days later the doc' called and asked the nurse: "Have you a chart of his progress?"

"No sir," she replied, blushingly, "but I can let you look at my diary."



"I've been expecting this ever since they moved in next door!"

Daffynition!

Consider the college student's definition of heredity. "Heredity," he said, "is when your father and mother don't have any children, chances are you won't have either."

The headline writer of the Spokane *Chronicle* hit it off when he climaxed a story about a local fire with this'un: "Grill suspect over big blaze."

One man in a million is a leader of men—the others follow women.

There's the one about the retired fireman down in St. Petersburg who was going slowly down a side street and found a small boy sitting on the curb crying bitterly.

"Why are you crying, sonny?" he asked.

"Because I can't do the things the big boys are doing," was the reply.

And so the retired fireman sat down on the curbstone next to the boy and began to cry bitterly too.

The lads at Ladder 18 were discussing the fashions. I see the sweater-girl is going out," said the man-about-town First Whip.

"Yeah, and every night, too," added Kinkchaser.

A proby was having his eyes examined. The optician pointed to several cards at a distance with the letters "XZPTVCH" printed on them and asked if he could read them.

"I can see 'em clearly," replied the proby, "but I can't read Russian."

"Oh doctor," cried the wild-eyed patient, "I'm awfully afflicted. The ghosts of my departed relatives come and perch on the top of fence posts all around my garden when dark is coming. I can look out into the gloaming any evening and see a couple of dozen spooks sitting on top of the posts—waiting, waiting, waiting! What can I do?"

"Why get an electric fence," drawled the medico.

Have you heard the one about the fire fighter who offered his girl a Scotch and sofa, and she reclined?

Modern Civil Defense Fable

It happened after World War III, when H bombs had killed off every last human being.

After three or four days, when the dust and debris had settled, a couple of monkeys came out of their cave and solemnly surveyed the desolate, desecrated landscape. After several minutes the small monkey turned to her friend and said, "Well, honey, shall we start the damn thing all over again?"

She: "Getting real cold, isn't it?"
He (reflectively): "Ah yes, winter draws on."
She: "I sure have."

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Guaranteed Gallonage

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A Happy and Successful New Year To Our Readers

In this, our first issue of the New Year, allow us to thank you for the privilege of having been of service to you in 1956.

And allow us, if you will, to pledge ourselves to helping you make 1957 your most successful year on record.

During the months ahead, here's what we'll be doing to fulfill that pledge:

1. We'll be continuing to turn out issue after issue of this magazine with **you** in mind, and **you only.** Every article will serve one or more of your 1957 needs.

2. We'll be continuing to turn out a magazine that's **timely,** bringing you the latest news and developments in your field, and current, "how to do it" ideas—all to give you authoritative guidance on every phase of your operation.

3. We'll be continuing to turn out a magazine that's **complete**—bringing you guidance not only in the technical end of your work, but in all other phases as well.

4. We'll be continuing to turn out a magazine that's **national,** with our editors traveling thousands of miles to bring you important news, developments and techniques from every part of the country.

5. We'll be continuing to turn out a magazine that helps you look to the future; one that—rather than reporting on just the facts of today—**helps you prepare for tomorrow, next month, next year, and the years to come!**

Again, a Very Happy and Successful New Year to You!

FIRE ENGINEERING

305 East 45th St., N. Y., N. Y., ORegon 9-4000

Published by the Case-Shepperd-Mann Department
Business Papers Division, The Reuben H. Donnelley Corp.

Among the Buffs

By Paul C. Ditzel

MENTION WAS MADE last month of "sun spot" interference with fire radio transmissions and in the interim a Nashville, Tenn., buff reports that Los Angeles Fire Department broadcasts are being monitored there during the day almost as clearly as Nashville's.

With this freakish radio reception, buffs all over the United States no doubt will shortly be reporting that their ears are cocked for extra alarms thousands of miles away.

Says this Nashville buff, Dr. Paul G. Morrissey of 1913 West End Avenue:

"I wonder if the Los Angeles Fire Department knows that Westlake, San Pedro, West L. A. and Van Nuys radio stations and apparatus come in on our radios each day as clear and distinct as our own?

"My two-way sets in my car and at home (official F. D. radios) afford me considerable interest during the day, never at night, due to "sun spots," so they say. I listen intently, particularly on Saturday and Sunday afternoons when I have a little free time of my own.

"Yesterday, Sunday, November 25th, 1956, I listened to the first arriving company at the fire in San Fernando Valley, near Chatsworth, until the entire fire was well under control. I thought sure the men of Tanker 72 were gone when the fire jumped the road and I could hear them continue to call for help. This incident caused me many anxious moments, braced on the edge of my easy chair wishing there was some way I could help, nearly three thousand miles away. Thank goodness I finally heard help arrive and knew they were safe!

"I have heard so many of these men so many times that I'm sure I would know them by voice if not by name. I actually feel that Inspector 10 is an old friend, I hear him so much, though I have no idea who he may be, also Battalions 14 and 15 and Division 4. It's interesting to listen to these companies and stations so far away and I must say Los Angeles certainly uses radio to its fullest and almost unlimited extent," writes Dr. Morrissey.

Seems that buffing has indeed taken on a new dimension. Dr. Morrissey—meet Inspector 10. . . .

The good surgeon further reports that the Nashville Fire Buffs Club has now completed its large emergency bus donated by a local transit company. The unit is equipped with a stove, water tank, coffee urns, hot chocolate, hot sandwiches and all the medical equipment found in a modern hospital emergency room.

"Oxygen, intravenous therapy, all modern drugs and a complete setup for emergency treatment of coronary thrombosis and smoke inhalation are available in this bus. Of course, an MD is always in attendance at all multiple alarm fires and this unit is different in that definitive medical care is available to firemen,"

BEST SOLUTION TO YOUR HOSE STORAGE PROBLEMS

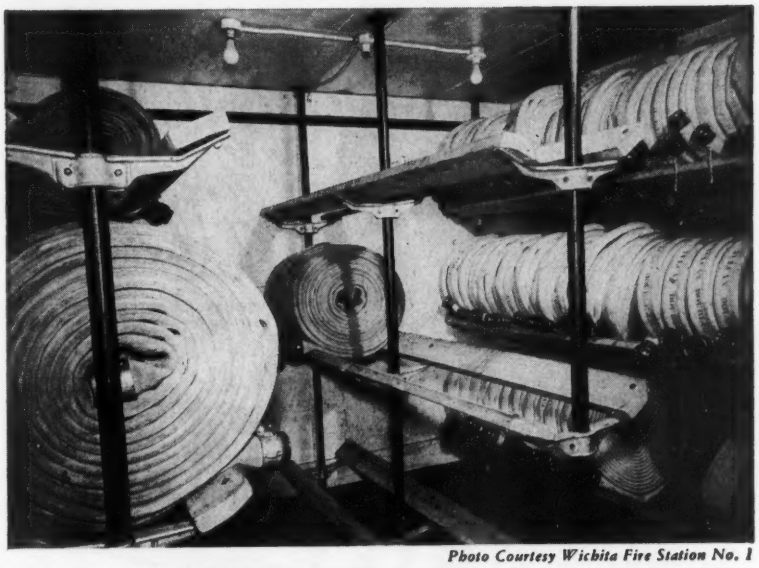

Photo Courtesy Wichita Fire Station No. 1

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SIMPLE INSTALLATION	EASY ADJUSTMENT	BIG LOAD SUPPORT
Ceiling Flange 1½" pipe supports LOK-TITE BRACKETS Floor Flange	2 x 6 stringers bolt to the bracket LOK-TITE BRACKET bolts to pipe support at any height	Pipe and stringers will fail before the brackets slip

Protect your hose with ample ventilation. Provide quick, easy access for use and inspection. Promote good housekeeping and make the most of your storage space, by planning and building your own racks – from new or used pipe and lumber, and handy, sturdy, fully adjustable Lok-Tite brackets.

Lightweight, high-strength aluminum alloy Lok-Tite brackets – designed for easy installation.

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ARE BEYOND COMPARE—

"Discarded Soda Acid Extinguishers for INDIAN FIRE PUMPS"

"Over a year ago we discarded soda and acid type extinguishers and equipped with your **INDIAN FIRE PUMPS** which are giving great satisfaction with everyone well pleased.

We use **INDIANS** on fires that look impossible for a small pump to handle but they have always held the fire until a line could be laid and *in most cases* have the fire out before the line is laid."

H. B. Wells, Fire Chief
Newbury, S. C.

NO. 90 INDIAN
SLIDING PUMP TYPE

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Pump and Handle

BOTH TYPES OF INDIAN FIRE PUMPS are approved by UNDER-WRITERS' LABORA-TORIES

For all Class A fires. Fire Chiefs say INDIANS are "worth their weight in gold."

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"FOR 70 YEARS THE LEADERS"
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explains Dr. Morrissey, who promises to send this column more information and photos of this unique emergency unit. It appears to me, however, that the rig won't be complete until I send Dr. Morrissey a colored battalion map of Los Angeles companies together with a list of apparatus locations and telephone numbers.

Inasmuch as this column's deadline finds me in the midst of my Christmas shopping I might acknowledge the arrival of several cards: Geoffrey F. D. Pratt, our good friend in London and former editor of the *Fire Protection Review*, who has gone on to bigger and better things at another magazine in the Benn chain; John Lee Turner, secretary of the Friendship Fire Association, Kenneth Tindall, 109 Erickson Ave., Moorestown, N. J., who said some flattering things about this column and The Box 57 Club of Teaneck, N. J., which apparently has a cartoonist in its midst judging from the unique card. Couldst be one R. Slockett?

In the convention issue we made a plea for increased public relations activities on the part of buff clubs and asked for further suggestions. Comes now Sam Gingrich, 247 Oxford Road, East Lansing, Michigan, (seems they used to have a football team up there in the woods somewhere) who is a city fireman, to explain what he, as a buff, and the ELMFD have been doing.

"On my days off I have taken some 35 mm colored slides of the department and I now have a set of perhaps 200 photos. These pictures are so arranged that they tell a story of the work of the fire department. I am now working with a member of the fire prevention section of the department and we are showing these slides at all of the grade schools in Lansing.

"Our program has been very well received by students and teachers alike. Should any other buff or fireman be a camera bug and be interested in doing something like this as an aid to fire department public relations, I'll pass on a summary of our program which lasts about 30 minutes."

By way of San Francisco comes the tragic news of the death of one of this area's best known buffs, Glen Alton of Whittier, former president of the Box 15 Club of Los Angeles. Glen was a very devoted fire fan and himself owned several vintage rigs. He frequently was

Glen Alton in one of his fire rigs

the subject of feature stories and I recall doing a picture page layout and story about him when I was a reporter for the old Los Angeles *Daily News*. Mrs. Alton, incidentally, is a buff of note herself.

My excellent correspondent from Chicago, John Phil McMahon, 3950 Lake Shore Drive, Apt. 1712, says our mutual pal Earle Schapiro had a time for himself (again) in the alarm office on November 24th: a 5-11 and 2 specials. Brer Mac watched the fire from high atop his Mount Olympus home. He's slowing down these days, for he waited until the first special was called before he turned out.

Until the bells go down here again, I remain at the same (new) address: 4235 Don Diablo Drive, Los Angeles 8. Wonder what's doing in Nashville? Their drawl hasn't broken through the squelch in the past five minutes! □□

November Fire Losses

Estimated fire losses in the United States during November amounted to $80,481,000, the National Board of Fire Underwriters has reported.

According to Lewis A. Vincent, NBFU's general manger, this $80,481,000 loss represents a decrese of 0.8 per cent from losses of $81,121,000 reported for October, 1956, and an increase of 17 per cent over losses of $68,784,000 reported for November, 1955.

Losses for the first 11 months of 1956 now total $892,805,000, an increase of 12.2 per cent over the first 11 months of 1955, when they amounted to $796,006,000.

These estimated losses include an allowance for uninsured and unreported losses.

More Firemen—Higher Pay

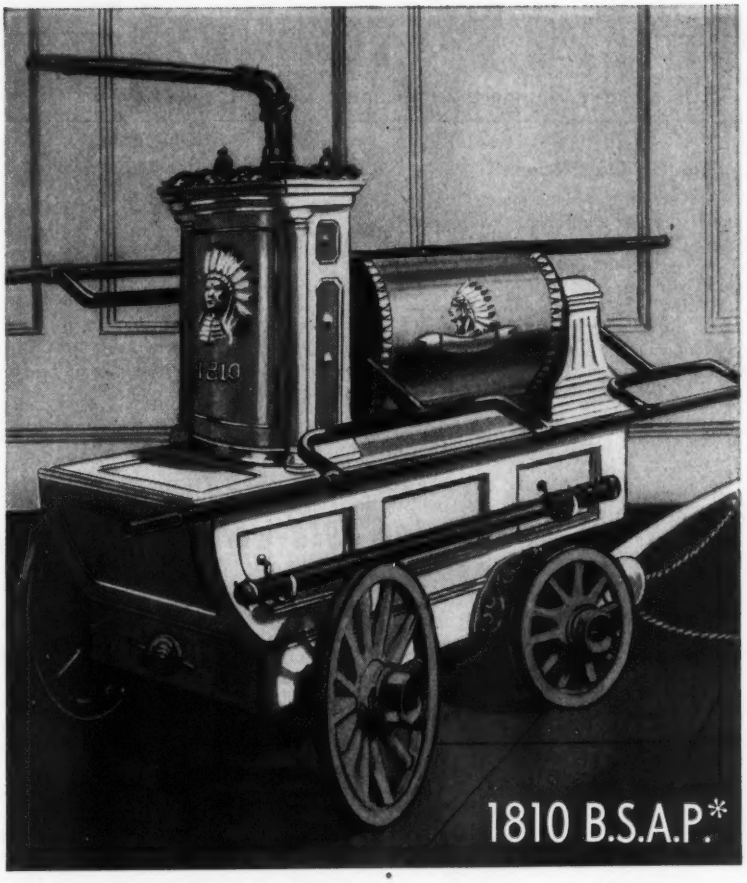
According to the 1956 Municipal Yearbook, published by the International City Managers Association, Chicago, firemen are getting higher pay, and more firemen are being hired. This, the publication states, is part of a trend that has been fairly steady for 10 years.

Yearly starting salaries for firemen in cities of more than 500,000 population range from a low of $3,000 to a high of $4,689, with the median falling at $4,173.

Cities in the 50,000 to 100,000 brackets pay starting salaries of $2,496 to $4,716, with a median of $3,695.

The smallest cities studied, it is disclosed, with populations from 10,000 to 25,000, pay their beginning firemen at least $2,160, and at most, $5,200. The median is $3,410.

The average city over 10,000 population employs 1.35 full-time fire department workers for every 1,000 inhabitants. Cities in the 100,000 to 250,000 group have the highest average, with 1.66 full-time workers for every 1,000 residents. Municipalities between 10,000 and 25,000 population have the lowest average, with 1.18 for each 1,000.



WHEN BREATHING PROTECTION EQUIPMENT *Was a Wet Blanket!*

Back in 1810, fire engines, like the man-powered job shown above, were only a short step ahead of the bucket brigade. Then, breathing protection equipment was a piece of wet blanket wrapped around the head, over nose and mouth.

Today's modern fire fighting methods include the lifesaving Scott Air-Pak that enables fire fighters to enter dense smoke and chemical fumes with complete breathing safety. The new Scottoramic Mask increases confidence. It affords unlimited vision in all directions to help firefighters keep out of danger zones.

The Scott Air-Pak uses only pure, fresh air, therefore maintenance cost is exceedingly low as compared to other types of breathing equipment. Scott Air-Paks give the greatest protection at the lowest cost.

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THE WATCH DESK

overhauling the firemanic news of the day

Fire Fighting Class 'Booms'

In Montesano, Wash., more than 80 members of the Southwest Washington Firemen's Association gathered on a Sunday for a training school and fire suppression demonstration.

The *piece de resistance* of the affair was to be an example of "training-by-doing" in which a real house fire was to be extinguished with high pressure fog.

Truly, this one went over with a "bang."

Montesano volunteers had contracted with the county to get rid of the frame structure that formerly housed an incinerator. It wasn't such a big building, and it was boarded up tightly for the occasion, after being loaded with piles of boxes, old tires, and whathaveyou. Gasoline was then poured over the interior to "boost" the fire and help speed up the demo',

The fire got hot fast, all right—so hot and so fast that when a flaming torch was flung inside the structure through a door, the building exploded. The roof flew into the air, the walls fell inward and too venturesome fire fighters beat a quick retreat.

Although, fortunately, no one was injured the explosion shook windows over a wide area of Montesano.

Nothing daunted, the volunteers went right ahead with their fog demo'!

John Jebens

Here's a break for hard-working firemen!

Dragon® Fire Pumps are designed with the fireman in mind . . .

1. They come completely assembled in a special carton. Just lift out the pump . . . fill with water . . . go into action!
2. The special Dragon harness is easy to get into and designed so the pump rides high where it can't throw the fireman off balance or interfere with walking.
3. Just a few easy strokes of the pump lever gives the operator a *continuous* flow of water he can direct right where it does the most good. And a mere twist of the shut-off nozzle gives either solid stream or spray *instantly*.
4. When he is using a Dragon Fire Pump, the fireman can take his hands off both shut-off nozzle and pump lever to use rake, shovel, or other tool.
5. There's no pump packing to dry out: even after standing idle for long periods, a Dragon Fire Pump is ready for instant use.

Yes, the way to boost firefighter efficiency and cut down fatigue is to specify Dragon Fire Pumps →

Dragon FIRE PUMPS

now available in 2 models

No. 150-S—Stainless Steel Tank

No. 150-G — Galvanized Tank: Cold-rolled steel, hot-dipped galvanized after fabrication.

All units equipped with brass pumps; all tanks seam welded. Capacity 5 gallons

DRAGON FIRE PUMPS meet Underwriters' Laboratories requirements and can be supplied with the UL label of inspection attached.

VALUABLE DISTRIBUTORSHIPS AVAILABLE, WRITE TODAY.

PARCO PRODUCTS COMPANY

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It Was No Pipe for Tommy

Three-year-old Tommy Hartnett of Barkersfield, Calif. will always remember firemen. So will his parents, Mr. and Mrs. N. L. Hartnett.

Tommy fell into a 12-inch well casing, once used for irrigation but later abandoned, and but for prompt and effective rescue operations, would probably have been killed.

The dramatic rescue, witnessed by a throng of more than 2,000, began quickly after Tommy fell into the pipe, while playing in a vacant lot. Other children saw him disappear and ran to notify his parents, who summoned firemen.

Providentially for Tommy, a root growing through the casing kept him from falling the full depth of the pipe, which extended 150 feet. Trapped about nine feet below the surface, Tommy whimpered and sobbed in his cramped and rusty prison while firemen and volunteers set to work to free him.

The task was difficult because any undue shock might release the boy to drop to his death, and because the rescue operations had to be completed in darkness.

Working in sweaty relays, firemen and helpers tore at the sandy soil surrounding the abandoned pipe, in the illumination provided by fire department and other floodlights.

After two hours, the rescuers succeeded in clearing away enough dirt and sand to enable them to cut off a six-foot section of the pipe, and deputy fire chief C. P. Linnell was able to reach down and pull Tommy out, unhurt but thoroughly scared.

Hot Off the Tape

In Pontiac, Mich., Mrs. Ada Wyatt, was sentenced December 10 to a maximum of 3½ to 4 years in jail for cruelty to children. She was convicted of burning and beating her seven-year-old daughter, Sherry Wilkinson. Judge George Hartrick called her crime "the most heinous I have witnessed in my 20 years of experience." . . . In Yonkers, N. Y., firemen were routed from sleep to answer four alarms, three of them false, all within a half-mile radius of the only fire. Ladder 4, returning from the blaze at 121 Stanley Avenue, was put out of commission when the big aerial hit a lamppost and smashed a store window. . . . An 83-year-old patient at St. Clare's Hospital, Manhattan, was fatally burned in her private

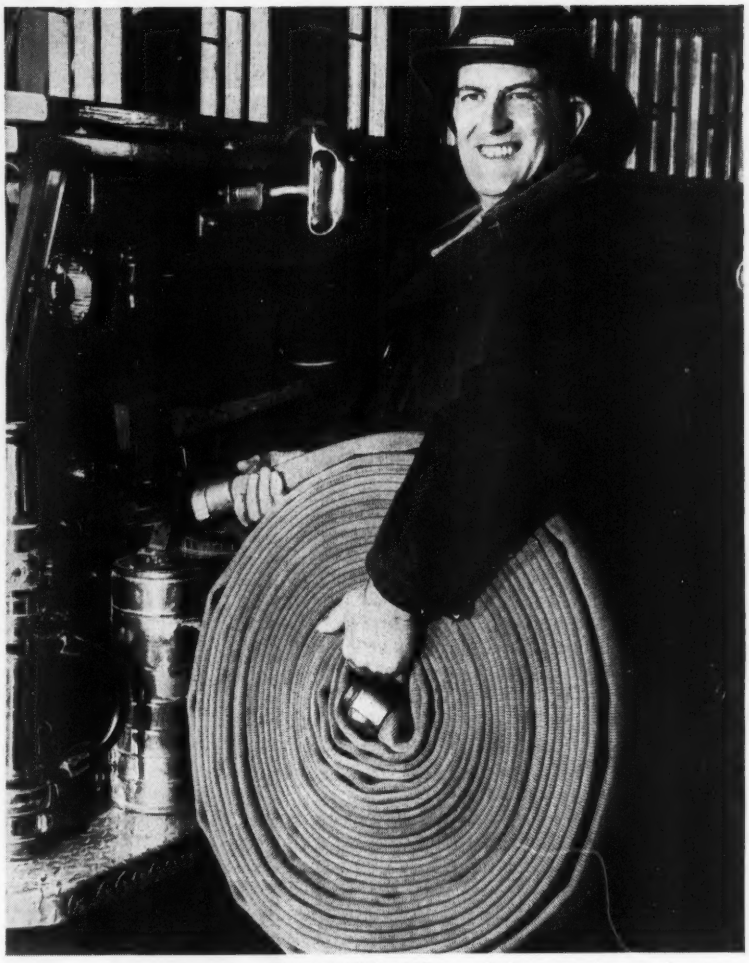
room, smoking in bed. . . . Clinton Anderson of Little Rock, Ark., was a bit surprised when his front lawn burned. As he strolled across his lawn he lit a cigarette. Boom! The lawn burst into flames. Anderson took off. Firemen spent 45 minutes putting out the blaze which was caused by a leaking gas line. . . . A nine-year-old boy was killed in an explosion and fire which destroyed his family's barn on a farm near Erie, Pa. Officials theorized that the boy lit a match and that dust from hay balers exploded. . . . Jacksonville, Fla., firemen were called to hold the net for—of all things—a raccoon. The animal made a surprise appearance seven stories up on the side of a building. Its origin was as puzzling as its actions. Excited spectators called the Brothers who nested the animal when its hold slipped and it fell. . . . Two Jonesboro, Ark., firemen underlined the moral of their "You-can't-be-too-careful-with-fire demonstration." Gasoline, used in the demonstration fired off cue, raising painful but not serious blisters on the two. . . . In Princeton, N. J., a "hot" election celebration in one of the 17 eating clubs at the University was halted by fire. Members of the Terrace Club lit off a bonfire which got out of control. At 2:00 a.m. the local vamps were called to put out the fire and the celebrants. Damage $2,000. . . . Ceremonies in connection with the cornerstone-laying of a new fire station in Selkirk, N. Y., were delayed last December. With the invited guests on hand, the hosts discovered that no one had ordered a cornerstone. . . . Flint, Mich., firemen, fighting a blaze inside a warehouse were buried in snow —not the real kind, but artificial. Seems the heat of the fire caused several hundred cans of the make-believe to explode and the phony flakes floated down on the Brothers. . . . Down El Paso-way, Fireman William Holmes was kinda glad there were no early morning alarms. Someone sneaked into the station's sleeping quarters during the night and swiped Holmes' trousers. Deponent failed to say whether the boots went with'em. . . . From Garden Grove, La., comes this'un: Two small boys wanted to test their water pistols. Best way, they thought, was to put out a fire. So the lads, seven and eight years old, set fire to a vacant house and were squirting away vigorously when firemen arrived with man-sized hose and "squirters." Damage $500. Boys got further learning in fire prevention from their parents.

"Picture" Fire Alarm

The crash of a fallen picture in his living room recently awakened an Athol, Mass., resident. Investigating he found the wall partition on fire. Flames had eaten through the picture cord and triggered the "fire alarm." Damage was held to a few hundred dollars.

Speedy Response

An Indianapolis housewife recently got faster service than expected. Discovering a small fire in her home she telephoned an alarm to the fire department.



NEW "QUAKER 100" is made from extra-long staple cotton, chemically treated to keep its flexibility and reduce elongation.

NOW! 1½" DOUBLE JACKET MUNICIPAL FIRE HOSE IN 100-FOOT LENGTHS!

It's new "Quaker 100"—a 600 lb. hose. And it's quick drying, easy to pack and fold!

● ***It's light!*** One coupled length of "Quaker 100" weighs only 34½ lbs.

● ***It's strong!*** Specially treated cotton provides at least 10% more strength in each warp strand woven into the jacket. (Average burst pressure per three foot length is 1200 lbs.)

● ***It's quick drying!*** "Quaker 100" absorbs 25% less water than conventional 600 lb. dacron filler hose.

● ***It goes into action quickly!*** 100 feet long, "Quaker 100" reduces by 50% the danger of couplings pulling off or snagging.

SEE THE SAVINGS! See how easy "Quaker 100" is to use and maintain! Call your Quaker-Quaker Pioneer distributor today. For free brochure, write: *H. K. Porter Company, Inc., Quaker Rubber Division,* Philadelphia 24, Pa., or *Quaker Pioneer Rubber Division,* Pittsburg, Calif.

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Show your audience two handkerchiefs separately. Then you toss them up in the air and presto! — they come down tied together. Your left hand holds the top handkerchief with the lower one dangling. Your right hand sweeps down over the handkerchiefs and they fall apart. THE SECRET? — You have a rubber band on the tips of your right thumb and forefinger. In tossing the handkerchiefs into the air you slip the elastic over one end of each handkerchief and when they come down they will seem to be tied together. When your right hand sweeps down, you simply pull the bottom handkerchief and the "knot" is gone. The elastic is secretly dropped on the floor.

JUST LIKE MAGIC

HI-GLO is that new (almost magic) metal developed by Blackinton to give you fine quality badges that you can POLISH — POLISH — POLISH. It will never lose its golden finish, retains its shiny new look for the life of your badge. Polish it as hard and as often as you like — *just like magic*, **HI-GLO'S** lustrous finish remains on and on.

A ruby colored stone set in the eye of the eagle, optional at extra cost, will give your badge the extra touch of quality it deserves.

See for yourself — ask your equipment supplier to show you samples of the new BLACKINTON **HI-GLO** badges. Most badge designs are now available in **HI-GLO**

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V. H. BLACKINTON & CO., INC., ATTLEBORO FALLS, MASS.

BADGES AND UNIFORM INSIGNIA FOR EVERY SERVICE AND INDUSTRY

As she hung up the receiver, the apparatus pulled up in front of the house.

A lieutenant of one of the responding companies had noticed smoke coming from the roof of the residence from his fire station only a half block away, and swung into action.

Raymond P. Huffman

Denver Gets a Real "Whodunit"

A vacant house in Denver's residential area exploded with a boom, not so long ago. Walls, windows and roof bulged. So did the neighbors' eyes.

Three hours after the blast, Denver firemen rolled up to the scene. They asked a neighbor next door if she had turned in the alarm. She said she had heard the blast but hadn't called firemen. She has no telephone, Besides, she said, it was none of her business.

That's what one might call the height of something or other.

Obituaries

Chief Frank Murphy

Frank Murphy, former Chief of Staff and Operations of the New York Fire Department, died December 13. He was 71 and succumbed following an operation.

Born in Ireland, he joined the fire department in 1907. He was promoted to lieutenant in 1917 and in 1919 was made captain. In 1925 he was promoted to battalion chief and four years later to deputy chief. In 1946 he was named assistant chief of department and designated acting chief. That year, Commissioner Frank Quayle created the post of Chief of Staff and Operations and appointed Acting Chief Murphy to the position. In that post, he became administrative assistant to Mr. Quayle, but continued to handle the duties of chief of department.

The title of Chief of Staff and Operations was abolished in January 1951 in a departmental reorganization and Chief Murphy retired soon after. He was a close friend of former Mayor William O'Dwyer who never forgot the efforts of Frank Murphy, then a battalion chief, to start a fund-raising campaign to assist the widow of Mayor O'Dwyer's brother James, a fireman, who was killed during a fire.

Chief Murphy during his 43 years in the department, saw it grow from a force of about 2,000 men using horse-drawn equipment, to over 11,000 men, using the latest streamlined equipment. A quiet, modest man, Frank Murphy was a strict disciplinarian where department regulations were concerned, but a man who was always sympathetic to the problems of those who served the department. He was active in departmental welfare and civic organizations and founder of the Uniformed Fire Officers Association. He

is survived by his widow, a daughter, three brothers and a sister.

Fire Commissioner Edward F. Cavanagh, Jr. ordered highest departmental funeral honors be given the deceased chief who was buried on December 15th.

Former Presidents, NBFU

The executive committee of the National Board of Fire Underwriters recently adopted resolutions honoring the memory of two former presidents, Frank D. Layton and Robert P. Barbour. Mr. Layton died October 24, 1956. He served as president of the National Board from 1939 to 1941. Mr. Barbour, who succeeded Mr. Layton and served as president until 1943, died December 6, 1956.

William F. Hennessy

William F. Hennessy, Senior Electrical Engineer of the Communications Bureau, New York Fire Department, died December 15th following a heart attack, terminating a 54-year career devoted to fire service communications engineering.

Mr. Hennessy was one of the most widely known authorities in fire alarm communications. In every sense of the word he was a career man. He started as a telephone boy on the switchboard of the old Manhattan Fire Headquarters in East 67th Street. When he became a fire alarm operator he attended Cooper Union at night and was graduated with a degree in electrical engineering. His progress upward through the fire alarm service was uninterrupted and for many years he had the engineering responsibility for operating and maintaining the vast New York Fire Department fire alarm plant. His advice and judgment on fire communications were sought and respected by not only New York's fire commissioners, chiefs of department and communications engineers, but by representatives of other municipal fire departments and fire alarm equipment manufacturers.

He was active in the affairs of the International Municipal Signal Association. He was long a member of the faculty of the Fire College and at one time he served as a member of the Delehanty Civil Service Institute.

Uniform Allowance

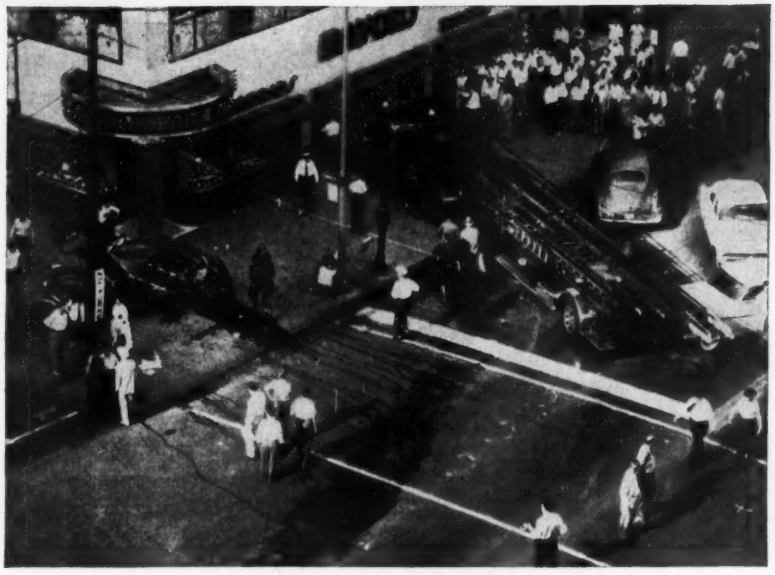
According to local police, a Benton Harbor, Mich., 18-year-old volunteer fireman intended to pay for his $25 uniform by turning in false alarms. Volunteers get $3 for each call, false or not.

Emery Radar, who devised the scheme, aroused suspicion by always showing up first at the firehouse. Investigation later showed that Radar and a 19-year-old friend turned in eight false alarms during last July and August.

A local judge balanced the account, however, with a sentence to Radar of $30 and 30 days; the friend got 10 days and $10.

Tom Magner

Eliminate This!



with EL-TEC

RADIO TRAFFIC CONTROLLERS

Crashes like this Cost Lives . . . Property . . . Money . . . and tie-up badly needed equipment and highly trained personnel. *These tragedies virtually can be eliminated!*

The driver of an emergency vehicle can have uncontested, clear right-of-way for blocks ahead . . . he can stop all traffic on his route. He does it with EL-TEC, an electronics system for controlling traffic from a moving emergency vehicle.

EL-TEC is new, but years of research and development have proved its dependability. The system and equipment have been hailed as the most important stride in emergency traffic safety in many years.

EL-TEC has been commended by the nation's leading police, fire and traffic officials as well as various State Safety Committees and Highway Commissions.

Electronic Protection Inc.

Subsidiary of Standard Coil Products Co. Inc.

2081 North Hawthorne Avenue - Melrose Park, Illinois

The Only FCC Approved System For Emergency Traffic Control

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GET THE FACTS!
SEND COUPON TODAY!

You owe it to yourself, your community, your firemen, policemen and all emergency drivers to learn how low-cost, reliable EL-TEC Radio Traffic Controllers can save lives, prevent suffering, cut down property damage, keep all emergency equipment "in service."

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2081 North Hawthorne Avenue, Melrose Park, Illinois.
☐ Please have representative call.
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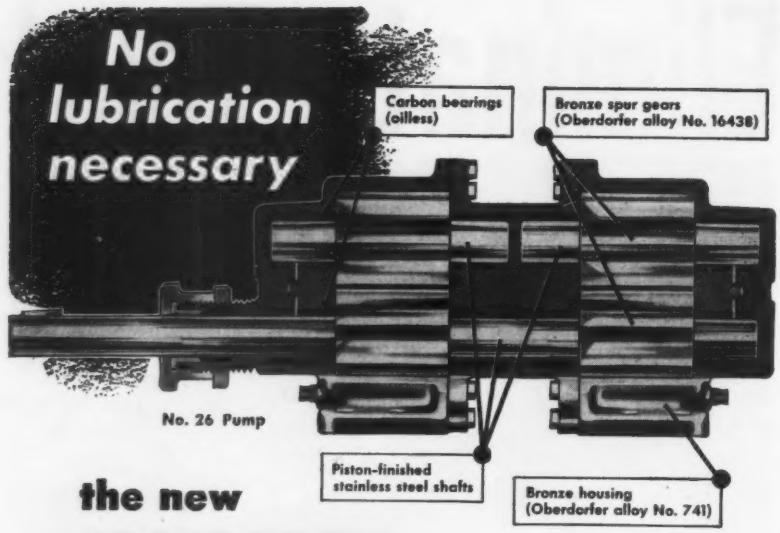

No lubrication necessary
Carbon bearings (oilless)
Bronze spur gears (Oberdorfer alloy No. 16438)
No. 26 Pump
Piston-finished stainless steel shafts
Bronze housing (Oberdorfer alloy No. 741)

the new

OBERDORFER BRONZE BOOSTER PUMPS

These booster pumps with oilless bearings will last 3 to 5 times longer than the old style equipped with plain bronze bearings. As a result of closer machining tolerances, over 20 feet of suction lift may be depended on.

The No. 13 and No. 26 Oberdorfer Pumps are more fool-proof than they have ever been. When you get to a fire you have something you can count on. It isn't necessary to wear pumps out checking them periodically to see if they will work. These pumps are metering pumps in principle and therefore must produce the same volume for every revolution of the drive shaft.

PERFORMANCE DATA—No. 26 and No. 13 PUMPS

Pump No.	Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
26	1600	120	500'—1½"	20'	150
13	1600	120	500'—1½"	20'	75

FIRE PUMP DIVISION, Oberdorfer Foundries, Inc., Syracuse, N. Y.

ACTION . . . Fast . . . Efficient

STEPHENSON "MINUTEMAN" RESUSCITATOR

Weighs only 30 pounds.

will SAVE LIVES in respiratory emergencies.

INHALATOR RESUSCITATOR ASPIRATOR

Does more for the patient in cases of smoke suffocation, gas poisoning, heart attack, electric shock etc.

Simple Dependable Safe

Write for FREE demonstration or pamphlet F-401.

STEPHENSON CORPORATION
RED BANK NEW JERSEY

Represented in Canada by Wilson & Cousins, Toronto

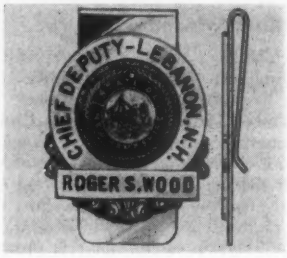
MANUFACTURERS' NEWS

Continued from page 49

large buildings and exposures are recorded and accompanied by an explanatory narration. Fire departments in Wisconsin, Illinois, Ohio, Kansas and Tennessee cooperated with the committee and appear in the fire fighting scenes.

The use of standard equipment as well as improvised methods are studied and the report covers hand lines, master streams, booster tanks, tank trucks, portable pumps and canvas reservoirs. For complete information write to Steve Smith Pictures, Route 6, Topeka, Kansas.

Badge Money Clip



In addition to their conventional coat and cap attachments, all Nielsen-Rionda badges can now be supplied as money clips. The badge and money clip is easily attached to the belt, coat or shirt pocket for rapid identification at the scene of an emergency and is made of spring nickel silver to assure a firm secure grip under all conditions. The new 32-page Nielsen-Rionda catalog featuring their entire line of money clips, badges and conventional safety coat and hat attachments is available upon request.

New Manager of Motorola Service Training

Joseph P. Jatis has been named Manager of Two-way Radio Service Training for the Motorola Corp. He will be responsible for the service clinics held throughout the United States each year as well as the classes held at the factory in Chicago. Mr. Jatis has been with the company since 1935 and prior to his promotion was assistant to the national service manager.

New Portable Emergency Light

A new portable emergency vehicle warning light for law enforcement agencies, part-time ambulances, volunteer firemen, and road maintenance vehicles has been developed by Federal Sign and Signal Corporation.

The new Fireball light attaches to any metal surface by magnets, has a 12-foot cord which plugs into the vehicle's cigarette lighter and is available in 6 or 12-volt models. Revolving 360 degrees, the unit is powerful enough to be seen for long distances and offers maximum sig-

nal warning in traffic. A model for permanent mounting is also available. For further information write to the manufacturer at 8700 So. State Street., Chicago 19, Ill.

Manager GE Communications

General Electric Company has announced the creation of a Communication Products Department which will absorb functions previously handled by the company's Communication Equipment Section. Products of the new department will include mobile radio, microwave radio relay, radio traffic coordination units, power line carrier equipment, terminal equipment and other communication systems.

Harrison Van Aken, Jr.

The announcement was made by Harold A. Strickland, Jr., general manager of the firm's Industrial Electronics Division, who disclosed concurrently that Harrison Van Aken, Jr., has been promoted to the position of general manager of the new organization. Mr. Van Aken previously headed the Communication Equipment Section.

S. N. Greenberg Named to San Francisco P.U.C.

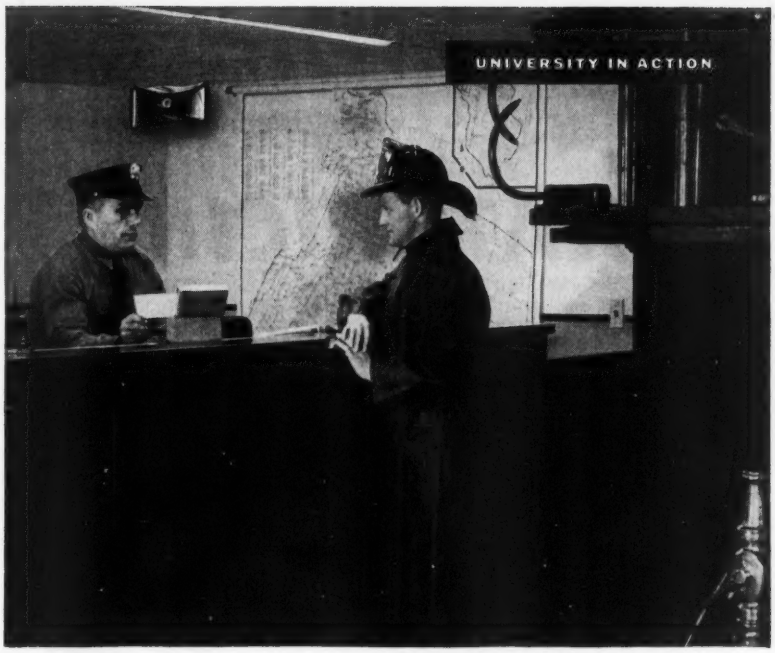
Stuart N. Greenberg, president of M. Greenberg's Sons brass foundry, San Francisco, has been named to the five-man Public Utilities Commission of San Francisco. He will fill the unexpired term of a recently resigned member whose term runs to January 15, 1959.

FWD "Special 1000"

Addition of a new Class A, electric or manual control 1,000 gpm pumper to its special series of fire engines is announced by Four Wheel Drive Auto Company, Clintonville, Wis.

Introduction of the Special "1000," gives FWD a complete range of 500, 750, and 1,000 gpm pumpers in its series of low-budget apparatus for communities which desire a quality pumper at moderate cost, without deluxe series features. It is available on lease-plan arrangements if desired.

The Special "1000" has the RD-501, 212-hp engine and is engineered to carry minimum basic equipment suggested by the National Board of Fire Underwriters. It mounts a 500-gallon booster tank and 6-inch hard suction hose; has reel for up



A fire house is often the scene of hurried activity. It is important to be able to communicate clearly and intelligibly at all times. That's why University's Model CIB is fast becoming a favorite for station installations. It projects sound in a wide angle. Built-in hermetically sealed driver assures years of trouble-free service.

FOR BEST RESULTS—

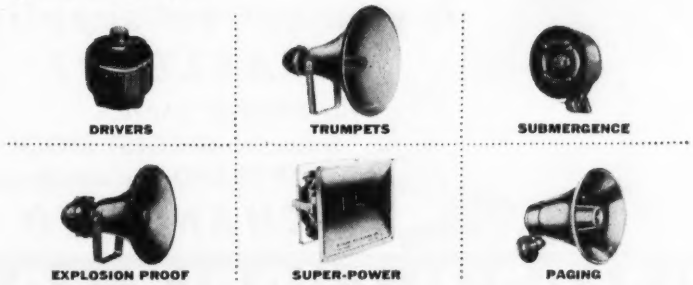
GET THE *University* SPEAKER MADE SPECIALLY FOR THE JOB

You wouldn't use a jeep when you need a Mack truck . . . or vice versa! Then why use a speaker that was not designed for the specific job?

University has made a scientific study of *your* field and has designed speakers which are custom-made for your special requirements. Now there's no need to accept a compromise speaker which can do only half of the job, nor a speaker that may actually cost more than necessary.

University is the leading manufacturer of specialized speakers for industry and public service, offering the largest selection of speakers and components for every possible need.

Our Technical Service Department will be pleased to consult with you. You'll be interested in our "Sound Planning Chart," an invaluable aid in planning a sound installation—it's yours FREE. Mail inquiries to Desk H-11.



UNIVERSITY LOUDSPEAKERS, INC., 80 SOUTH KENSICO AVENUE, WHITE PLAINS, N. Y.

LISTEN *University sounds better*

for on the spot treatment of burns.

safe - immediate relief!

HEXATHRICIN

Lincoln

automatic **aerospra**

will help SAVE a life!

Healing is 28% faster.

You will find HEXATHRICIN Aerospra particularly valuable in emergency and routine treatment of burns of all natures and all degrees of severity. It may be used with exposure or closed or pressure dressings.

Specific for all fungus and bacterial infections of the skin—poison ivy, poison oak, and indolent ulcers such as varicose ulcers and bed sores.

For literature write—

Professional Service Dept.,

Lincoln **Laboratories, Inc.**

Box 1139, Decatur, Illinois

Is your current supplier ASLEEP?

for PROMPT service from the LARGEST STOCK, TOP BRAND fire equipment.

CHANGE TO

HALPRIN SUPPLY CO.

1355 South Flower St., Los Angeles 15, Calif.

to 200 feet of ¾-inch booster hose; and body space for 1,500 feet of 2½-inch hose. Included are 24-foot, two-section wall and 14-foot roof ladders, wood or aluminum; other ladder combinations are optional. For full details write the above.

Oren Roanoke Promotions

William J. Faith has been promoted to vice-president and secretary of Oren Roanoke Corp., Roanoke, Va., according to an announcement by Francis S. Brigham, president and general manager. He will replace S. K. Dyer who resigned to accept a position in the Industry Control Department of General Electric Corporation. Mr. Faith will continue to head the Sales Department. Appointed to the position of purchasing agent is Rufus F. Underwood, formerly in charge of inventory control.

Cornelius Co. Promotions

R. T. Cornelius, president of The Cornelius Company, Minneapolis, Minnesota has announced several changes in company sales personnel. Robert S. Thompson has been named general sales

Robert S. Thompson

Fred Mohl

manager for the firm. In his new position he will direct sales activities of the company's three divisions; Portable High Pressure Air Compressors, Aviation Products and the Beverage Equipment Division.

Fred Mohl has been made manager of Portable Compressor Sales. This division supplies compressors to the Navy and Air Force as well as to the civilian market for skindivers, fire departments and industrial applications.

What's Burning?

THE FOLLOWING LIST includes fires of $10,000 and over in the United States and Canada for the period from November 22nd to December 22nd.

Tucson, Ariz.—Cole Peterson Dress Shop and factory building in downtown area, damaged. Explosion.
Fort Smith, Ark.—Calvary Baptist Church auditorium and educational building destroyed.
Bryte, Cal.—Old Rose Orchards warehouse and packing shed destroyed.
Inglewood, Cal. — Serve Yourself Hardware Store and adjoining Margent Professional Building destroyed.
Santa Rosa, Cal.—Dwelling of Ray Emenegger destroyed.
Trion, Ga.—Trion First Baptist Church and adjoining educational building, destroyed.
Chicago, Ill.—Building housing S. H. Arnolt, Inc., service and storage firm for autos, damaged.
Clifton, Ill.—Frake and Mayo Implement Co. damaged.
Illiopolis, Ill. — Downtown business building housing Melvin Smith drug store, Leonard Redman barber shop and Masonic Lodge hall, destroyed; adjoining Leonard Redman grocery store and William P. Roberts law office damaged.
Rockford, Ill. — Warehouse and two other buildings of salvage firm owned by Joseph Behr & Sons Co. destroyed.
Springfield, Ill.—Arnold's Gift & Card Shop, Ideal Hotel and offices of William G. Horsley, lawyer; Elliot Bradley & Co., mortgage brokers; Farrell & Co. stockbrokers; Illinois Oil Products Agency and S. Bradley & Son, damaged.
Gary, Ind.—Jackson's Restaurant damaged.
Lebanon, Ind.—Club 52, tavern and bowling alley, one mile south, damaged.
Valparaiso, Ind.—Valparaiso University auditorium destroyed.
Des Moines, Ia.—Building owned by Plumb Supply Co. destroyed.
Ossian, Ia.—Building housing Schmitz Furniture Store, Funeral House and Ossian Telephone Exchange, destroyed.
Eminence, Ky.—Four buildings of Berry Brothers Construction Co. destroyed.
Louisville, Ky.—Smith County Tobacco Warehouse Co. sales building destroyed.
Middletown, Ky.—Barn on Dr. Edward Landis farm destroyed.
Dexter, Me.—Main building of George Hall & Sons canning factory, destroyed.
Phoenixville, Md.—Dwelling of T. D. Shanaman destroyed. Spilt paraffin.
Lynn, Mass. — Twelve buildings of recently closed Agoos Tanning Co. destroyed.
Battle Creek, Mich.—Two barns and dwellings on Howard Dunlop farm, northwest in Lee Township, destroyed.
Detroit, Mich.—Van Del Super Market destroyed. Arson.
Flint, Mich.—Willing House Tavern and apartments destroyed.
Homer, Mich.—Three buildings of Calhoun Foundry destroyed.
Ionia, Mich.—Brown Manufacturing Co. No. 2 plant destroyed.
Neeley, Mich.—Produce storage building destroyed. Backing truck crashed into crates igniting oil heater.
Cloquet, Minn.—Stewart Furniture Co. store destroyed; Treasure Shop, gift store and Joe's Arrowhead Lounge, damaged.
White Bear Lake, Minn.—Street-Way Poultry farm damaged.
Holly Springs, Miss.—Cafe destroyed.
Nevada, Mo.—High school destroyed.
St. Louis, Mo.—Building owned by Housing Authority destroyed.
Lewistown, Mont.—Lewistown County-City Airport hanger destroyed. Broken light bulb.
Las Vegas, Nev.—Boulder Club damaged.
Dover, N. H.—Greek Orthodox Church of the Annunciation damaged.
Linden, N. J.—The Russell 29, barge, at Cities Service Co. dock, Arthur Kill, damaged.
Passaic, N. J.—Building 54-58 Wall Street, housing silk screen printing plant and apartments, destroyed.

Sun-bathing?

It's a swell way to get a tan—BUT it's a helluva way to dry fire hose. In fact . . . drying hose in the sun is the surest way to curtail its life expectancy. The sun bakes in contamination and, just as the sun dries your skin, it removes the natural oils from the cotton fibers and ages the rubber lining.

Hose should ALWAYS be washed after using, then dried with proper hose conditioning equipment.

FIRE HOSE DRYER

The patented, electrically operated Circul-Air hose dryer circulates prewarmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. Saves floor space, hard work and lengthens hose life. No other drying method is so fast—so economical—so easy to use. Circul-Air is the preferred drying method in over 4,000 leading Fire Departments.

ACCEPTED — APPROVED — RECOMMENDED

Approved by Underwriters' Laboratories . . . and Canadian Standards Association. Recommended by all leading fire hose manufacturers.

UL LABORATORIES APPROVED SA

PORTO-RAK HOSE STORAGE AND LOADING UNIT

Saves valuable space. Holds 1800 ft. of 2½" hose—proportionately more of 1½"—in an 8 ft. space (when loading table is detached). Roll it right up to the truck for complete hose reload—out of the way when not in use. Equipped with locking fiber wheeled casters.

THE A-Z FIRE HOSE WASHER

This modestly priced washer drains and rinses the hose as it washes. 4 Roto-Jets constantly spray hose with clean, fresh water—all sediment is flushed through collecting pan and down the drain. Turn tables keep the hose OFF the floor. They're excellent for reloading truck (several lengths may be stacked on each) or loading the hose dryer.

Roto-Tables Sold Separately

New Booklet (No. 5) "Fire Station Design" Now Available. Send For Your Copy Today.

THE CIRCUL-AIR CORPORATION 575 EAST MILWAUKEE DETROIT 2, MICHIGAN

THIS FREE BULLETIN shows you . . .

. . . HOW THIS NEW P-F Hydraulic RESCUE KIT . . .

. . . uses 7½ TONS of HYDRAULIC POWER to FREE TRAPPED VICTIMS FASTER!

READ WHY the P-F RESCUE KIT gives you all the power, speed and versatility for FAST, SURE RESCUE.

READ HOW the P-F 7½ Ton, Remote-Control Jack and All-Position Ram, Speedlok Tubing and Versatile Attachments, including the exclusive Bite-Tite Pull Clamps, Cleated Push Base and Spreader, fit all rescue situations.

Before purchasing any Rescue Equipment send for your FREE copy of this informative bulletin.

MAIL COUPON *today!*

H. K. PORTER, INC.
SOMERVILLE 43, MASS.

Please send me copy of Rescue Kit Bulletin

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

Penns Grove, N. J.—Penn Garment Co. damaged.

Riverdale, N. J.—Neil's Tavern and restaurant destroyed.

Roselle, N. J.—Linden Lumber Co.'s house furnishing and electrical supply store, destroyed.

Trenton, N. J.—First Methodist Church destroyed. Arson.

Albany, N. Y.—Barn and sheds owned by Mrs. George Rioux, Saratoga County, destroyed.

Apalachin, N. Y.—Wego Heat Treat Inc. plant destroyed.

Brooklyn, N. Y.—Luckenbach pier destroyed. Explosion.

Champlain, N. Y.—Barn and 70 head of livestock on Wilfred Tetrault dairy farm, two miles west in Clinton County, destroyed.

Hamburg, N. Y.—Building housing Smith Brothers hardware store and professional and town offices, damaged.

Kendall, N. Y.—Grocery store and Masonic Lodge hall in Orleans County building damaged.

Ogdensburg, N. Y.—J. J. Newberry department store destroyed; adjoining Woolworth Co. store, Empsall-Clark Co. store, Samilson's Ladies' Wear store and Nathan Frank's Son department store, damaged.

Riverhead, N. Y.—Ivan's Shoe Store, Tepper Bros. stationery and luncheonette, Newsday delivery office, Frank Sendlewski's shoe repair store, Drielah's Liquor Store and Tappy's Food Market, damaged.

Fayetteville, N. C.—Proctoer-Barbeur, Inc., farm equipment firm; Capitol Appliance Annex and Parker House of Music in adjoining building destroyed.

High Point, N. C.—Style House, Inc., living room furniture plant, destroyed.

Raleigh, N. C.—Old Barnes Homeplace, plantation mansion, six miles north on U. S. 15-A destroyed.

Reidsville, N. C.—Smothers warehouses Nos. 1 and 2 destroyed.

Rocky Mount, N. C.—Rio Restaurant, two miles north on U. S. 301, destroyed.

Rolla, N. D.—Cafe of Peter Gilberg and drug store of B. C. and E. K. Neumann destroyed; Klein's jewelry store, Mongson Variety store and apartments damaged.

Akron, Ohio—Quonset-type garage housing Paul Stutler, Inc. and Diamond T. Co., damaged. Explosion.

Cleveland, Ohio—Emanuel Episcopal Church damaged.

Cleveland, Ohio—Christ Episcopal Church damaged.

Cleveland, Ohio—Stone Grill and adjacent State Newstand destroyed.

Lima, Ohio—Congress Cafe and apartments damaged.

Lima, Ohio—H. F. Rentz & Sons bakery damaged. Overheated vat.

Junction City, Ore.—Charles F. Johnson sawmill destroyed.

Newport, Ore.—Beaver Crest Lodge destroyed.

Portland, Ore.—Piggly-Wiggly Grocery damaged. Faulty oil heater.

Portland, Ore.—Cook's Toy Store and Roy's Lunchroom destroyed.

Portland, Ore.—Kenton Auction House destroyed.

Erie, Pa.—Offices and warehouse of National Biscuit Co. damaged.

North Wales, Pa.—Main foundry building of King's Foundry, Inc., destroyed.

Philadelphia, Pa.—Citizens League of West Philadelphia Club damaged.

Pittsburgh, Pa.—Pentlong Shopping Center in Churchill Valley District of Penn Township, housing drug store, superette, Marco Donatelli barber shop and dental office, destroyed.

Pittsburgh, Pa.—Forbes Building housing Edwards Seahorse Bar & Restaurant, barber shop, beauty shop and dress shop, damaged.

Quakertown, Pa.—Main warehouse of Quakertown Coal & Lumber Co. destroyed.

Richboro, Pa.—Dwelling of Raymond J. Barnes, Wrightstown Township, damaged.

Scranton, Pa.—First Welsh Baptist Church destroyed.

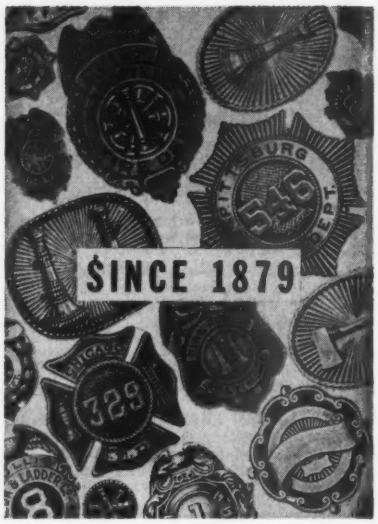
Woonsocket, R. I.—Hillside Hotel damaged.

Mitchell, S. D.—Anthony Motel destroyed.

Carthage, Tenn.—Smith Tobacco Warehouse Co., five Tennessee Central Railway box cars and dwelling of Fernando White, destroyed; J. L. Ragland Wholesale Grocery building damaged.

Nashville, Tenn.—Sanders Manufacturing Co., gift and novelty firm, damaged.

Waverly, Tenn.—Bones Restaurant and adja-



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Since 1879

Firemen the world over rely on Braxmar for the finest badges money can buy. We offer the widest possible selection in nickel, chrome plate, sterling silver, gold plate, rolled gold and solid gold; all of our badges and insignia are the work of experts with a lifetime of service.

Write for latest catalog and price list.

Dealer inquiries invited

THE C. G. BRAXMAR CO., INC.

216 East 45th Street

New York 17, New York

cent Armstrong Motor Co. parts department, destroyed.
Dallas, Tex.—Home Furniture Co. warehouse damaged.
Mart, Tex.—Murray Watson grain elevator destroyed.
Jonesville, Va.—Flatwood Elementary School damaged.
Auburn, Wash.—Cedar Tex Corp. mill destroyed. Faulty electric motor.
Prescott, Wash.—Prescott Grocery damaged.
Spokane, Wash.—Bon Marche Department Store damaged.
Tacoma, Wash.—Fife Service Station destroyed.
Yakima, Wash.—Manhasset Specialty Co. destroyed.
Pine Grove, W. Va.—Three business buildings in Wetzel County, housing general store, dress shop, insurance office and barber shop, destroyed.
Evanston, Wyo.—Union Pacific office building destroyed.
Ketchikan, Alaska—Civil Aeronautics building destroyed. Faulty furnace.
Calgary, Alta.—Military tank hanger housing 13 Centurion tanks destroyed.
Edmonton, Alta.—Drilling rig owned by G. P. Drilling Co. in Drayton Valley, damaged. Welding torch.
Stop Trail, B. C.—Strand Theatre destroyed.
Vancouver, B. C.—Vancouver Box Plant destroyed.
Aylmer, Ont.—Pack Barn on Mauris Van Halewyn farm, RR 5, and equipment, destroyed.
Goderich, Ont.—Century-old British Exchange Hotel damaged.
Grimsby, Que.—Apartment building, formerly part of Village Inn, damaged.

Bulletins, Catalogs Wanted

The Brooklyn Public Library is adding a Fire Protection Collection to its Science and Industry Division in its Central Building.

Mr. Francis R. St. John, Chief Librarian, has requested that manufacturers of fire apparatus and equipment, and research organizations on fire, send their bulletins and catalogs for inclusion in this collection, and that the Library be continued on their mailing lists to receive future publications.

This Central Building is open seven days a week for research by industry, architects, fire students, fire officials, chemists, engineers, installers and others interested in advancing fire science.

Material should be sent to Brooklyn Public Library, Science and Industries Division, Fire Protection Collection, Grand Army Plaza, Brooklyn 38, N. Y.

Patented Booth "Detains" Fire Alarm Sender

Patent No. 2,769,166 was granted October 30, 1956, by the United States Patent Office to Hugo Seckendorf, Albany, N. Y., for an invention of a fire alarm booth having means therein to detain a person transmitting an alarm.

Any person may readily enter the booth to turn in an alarm. When the crank lever of the fire alarm box is actuated, the signal is transmitted and the door of the booth locked. Release is by means of a key carried by a person who responds to the call.

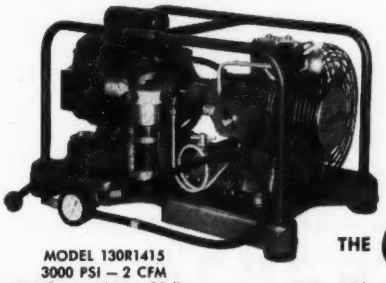
According to the patent papers, the setup will tend to prevent irresponsible false alarms and assures that the party turning in the alarm will be on hand to direct firemen to the location of the fire.

From one chief to another . . .

CHIEF LUKE J. BERGAN, AUBURN, N. Y., SAYS:

"I would recommend the Cornelius Air Compressor to all Fire Departments using demand masks"

Chief Bergan adds: *"The Cornelius Air Compressor is all that it is advertised and we are very pleased with it. Before purchasing one we had to send away for refills and wait several days for return of the cylinders. Now when our tanks are used, sometimes not entirely empty, we refill them and they are always ready."*



MODEL 130R1415
3000 PSI — 2 CFM
Weight complete — 95 lbs.

There is no substitute for an abundance of pure, fresh air for prompt, effective fire fighting. Write today for FREE Cornelius portable compressor catalog or call your fire equipment distributor for a demonstration. Find out why Cornelius compressors are recommended by fire chiefs everywhere.

THE Cornelius COMPANY
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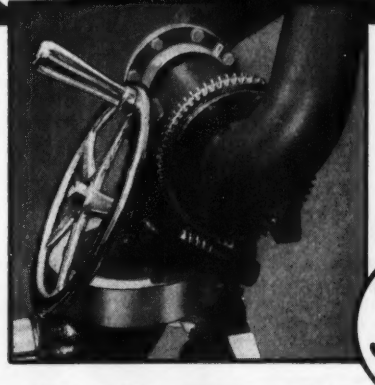
DELUGE GUN



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DIRECTIONAL
HAND WHEEL
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The NEW HAND WHEEL CONTROL enables one man to operate the gun.
It will hold in any position.
EASY TO OPERATE — STURDY — SAFE
Send for complete information

SAMUEL EASTMAN CO., INC.
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FIRE HELMETS

LEATHER ALUMINUM PLASTIC

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TURNOUT SUITS RUBBER COATS RUBBER BOOTS
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SECRETARY'S RECORD BOOKS
LOOSE-LEAF FIRE RECORD BOOKS
SECRETARY'S BLANK FORMS

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DON'T SPECULATE-
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Persons in the News

Kenster Chief at Buena Park

Thomas Kenster, former battalion chief in the Los Angeles Fire Department, has been appointed chief of the Buena Park, Cal., Fire Department.

Chief Kenster takes over the position, as Buena Park City Manager Phillip Storm announced separation of the Buena Park Department of Public Safety which has been in operation since the Orange County community incorporated several years ago.

Buena Park is the second Southern California community to recently give up the public safety department plan in which police and firemen perform the same duties. Monterey Park early in 1956 announced it would have separate police and fire departments.

Cliff Dektar

East Providence Chief Retires

Fire Chief John A. Laughlin, 50, retired from the East Providence, R. I., Fire Department on November 7, 1956. Chief Laughlin had previously requested retirement in April 1955 because of reasons of health but at the urging of the Town Council had remained as head of the department. The Town Council reluctantly accepted his resignation last October.

Chief Laughlin was a member of the East Providence department for 29 years having been appointed in 1927. He was promoted to lieutenant in 1931, deputy chief in 1945 and became chief on January 18, 1947. He is a past director of the International Association of Fire Chiefs and a past president of the New England division of that body.

Wescott Chief at Huntsville, Mo.

E. J. Westcott has been elected fire chief and training instructor of the newly organized Huntsville, Mo., Fire Department. He formerly served as a government fire chief and lately retired from the Safety and Security Fire Control Division of a Thiokol Chemical installation in Texas.

In setting up the new department Chief Westcott was able to draw for his personnel upon the business men and engineers from nearby International Harvester Company proving grounds.

Officer material was selected on a shift system as some of the fire department personnel work at various hours of the day and night. Recently the department responded to six alarms within 25 hours.

Fletchner Chief at Fitchburg, Mass.

Deputy Chief Norman M. Fletchner became chief of the 109-man Fitchburg, Mass., Fire Department on December 5, following his appointment by Mayor

Hedley Bray and confirmation by the city council.

Chief Fletchner was first appointed a call private in 1941, and was promoted to permanent private in 1942 while in the army. In 1947 he was promoted to lieutenant. He became captain in 1949 and deputy chief in 1954. Upon the retirement of Chief Ernest C. Coulette last August he became acting chief, pending the establishment of a civil service list which he topped.

The new chief is the youngest man ever to hold the post in the history of the city. He is 40 years of age and the son of a fire fighter who retired in 1951 after 35 years of service.

PIER FIRE

Continued from page 35

as follows: Farrell Lines, foot of 31st Street; Lloyd-Brasileiro, foot of 30th Street; Isbrandtsen, foot of 29th Street. Heavy shock damage was also done to Bush Terminal and other nearby buildings. Property loss will exceed $15 million.

Factors the incident clearly demonstrates according to fire officials are (1) the need of increased fire prevention staffs in the fire department; (2) more frequent and detailed waterfront inspection; (3) stiffer penalties for violations; (4) clarification of codes and ordinances so there will be clearer designation of authority and responsibility for uncovering and prosecuting violations.

Only last month, FIRE ENGINEERING told about the decision of Fire Commissioner Cavanagh and Chief Connors to utilize fireboats in "field" inspections.

This disaster may well serve as a "horrible lesson" to Civil Defense authorities as to what might be expected, and what should be avoided, in the event of an enemy air attack. □□

AUBURN ARMORY FIRE

Continued from page 41

pumper from Lewiston. It was severely scorched and the windows were broken in the cab of the truck, but it was able to hold back the wall of flame and prevent further damage to the four-story shoe shop across the street. One Auburn fireman was hospitalized for burns on both hands, caused when a nozzle which he was handling became too hot.

The water supply in the general alarm area was excellent. On Union Street two 12-inch mains, both high pressure, run parallel on the west side. Two low pressure 6-inch mains are located on the east side. On connecting streets are 6- and 8-inch mains. Five pumpers were hooked up and supplied 11 of the lines. The remainder were taken directly from hydrants; those on the high pressure mains were flowing at 110 psi.

Investigation started immediately

The events leading to the fire as stated in the opening paragraphs were established after the flames had been sub-

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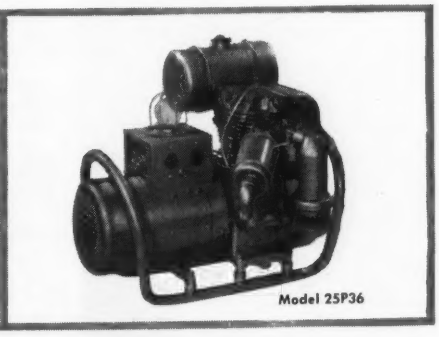

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dued. In addition, it was learned that a gate-tender at the railroad crossing tower across the street had noticed the fire but was too excited to report it.

An arson suspect was arrested at the scene shortly after firemen arrived. Originally apprehended for impersonating an officer, the man, wearing a deputy sheriff's badge attempted to assist a company arriving on the second call. His actions were more of an impediment than a help and the company officer requested assistance from the local police. Later questioning failed to connect the suspect with the fire but he was held on the charge of impersonating an officer.

Local officials believe the fire started in the boiler room of the armory. This area was not cut off from the rest of the cellar or from the stairway which led directly to the large open area of the drill hall.

Chief Miller stated the problem faced by the department in the following words: "It all boils down to the perfect conditions: No notification of the smoke smell, no watchman, no sprinklers in a public building, delayed alarm after discovery, and all-frame construction with no fire stops or safety devices whatsoever. □□

Tax Deduction For CD Aides

Press reports from Washington have stated that Civil Defense and Red Cross workers are now eligible for special income tax deductions.

The Internal Revenue Service has ruled that volunteers who pay out-of-the-pocket expenses, such as costs of going to and from local churches or hospitals to do Red Cross work, might deduct the costs from their income tax. Volunteers also may deduct the costs of special uniforms if the uniforms are not used for other work. The cost of meals, if paid for while away overnight on special duty, also are deductible.

Similar expenses for Civil Defense volunteers are also deductible. These include such items as, "traveling expenses to watch atomic bomb tests, the expense of attending state meetings of Civil Defense volunteers or other expenses directly connected with and solely attributable to the rendition of such volunteer service."

Where expenses come out of the volunteer's pocket, the Internal Revenue Service considers them contributions or gifts and therefore deductible.

New York Forest Losses Cut

Loss from forest fires this year in the State of New York were the lowest in the history of the Conservation Department, Governor Harriman announced in November. Rainy weather was the greatest factor.

In the "fire year" from November 1, 1955, through October 31, 1956, 943 fires had burned 5,275 acres of forest. The best previous year was 1950 when 1,281 fires burned 8,181 acres. In the 1955 fire year, 23,127 acres were burned over by 1,720 fires.

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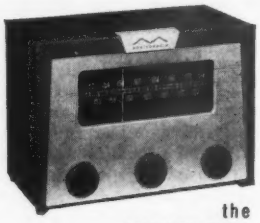

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Schools and Conferences

Jan. 21-24—**Florida Fire Service Training Improvement Conference,** to be held at Florida State Fire College, Ocala, Fla. For information, contact W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

Feb. 5—**Morris County Fire School,** to be held at Madison Fire Headquarters, Madison, N. J., at 8:00 p.m. For information, contact Robert H. Wright, Publicity Committee, Long Hill Lane, Chatham, N. J.

Feb. 6-8—**Fire Chiefs Seminar,** to be held at Purdue University, Lafayette, Ind. For information, contact Norbert Lehman, Fire Training Instructor, Public Safety Institute, Division of Adult Education, Purdue University, Lafayette, Ind.

Feb. 19-22—**Fire Department Instructors Conference.** Annual meeting, Memphis, Tenn. For information, contact Harry H. Wolff, Conference Secretary, P. O. Box 1089, Chicago 90, Ill.

Mar. 4-8—**Florida State Fire College.** Units 101—Tools, Forcible Entry, Breathing Apparatus; 107—Arson Detection; 202—Company Officer Training, to be held at Florida State Fire College, Ocala, Fla. For information, contact W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

Mar. 11-15—**Florida State Fire College.** Units 102—Hose and Ladders; 106—Fire Inspection; 204—Fire Fighting Tactics, to be held at Florida State Fire College, Ocala, Fla. For information, contact W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

Mar. 18-22—**Florida State Fire College.** Units 103—Rescue, Ventilation, Salvage and Overhaul; 105—Fire Apparatus and Pumps; 206—Fire Prevention and Protection, to be held at Florida State Fire College, Ocala, Fla. For information, contact W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

Mar. 25-29—**Florida State Fire College.** Units 104 — Fire Streams and 201 — Instructor Training, to be held at Florida State Fire College, Ocala, Fla. For information contact W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

May 21-23—**Liquefied Petroleum Gas Conference,** to be held at Florida State Fire College, Ocala, Fla. For information, contact W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

June 23-26—**New England Association of Fire Chiefs.** Annual meeting, Wentworth-by-the-Sea, Portsmouth, N. H. Secretary-Treasurer, John W. O'Hearn, 206 Mt. Auburn Street, Watertown 72, Mass.

June 17-21—**Fire Pump Maintenance Course,** to be held at Florida State Fire College, Ocala, Fla. For information, contact W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

Aug. 5-9—**Arson Investigation and Detection Seminar,** to be held at Florida State Fire College, Ocala, Fla. For information, contact W. H. Barnett, Superintendent, Florida State Fire College, P. O. Box 785, Ocala, Fla.

Sept. 8-12—**International Association of Fire Chiefs.** Annual meeting, New Orleans, La. Secretary-Manager, B. Richter Townsend, Hotel Martinique, Broadway at 32nd Street, New York 1, N. Y.

Sept. 22-26—**California State Firemen's Association, Inc.** Annual meeting, San Mateo, Cal. For information, contact E. L. Albrecht, Sr., Secretary-Treasurer, 755 - 17th Street, San Bernardino, Cal.

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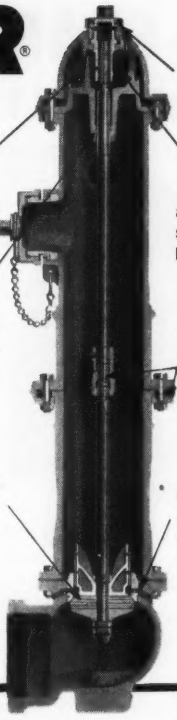

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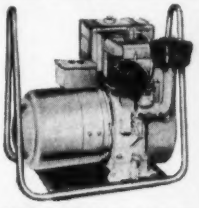

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Questions and Answers

wherein are answered questions relating to current problems in the fire protection

Hazards of Manganese

To the Editor:

What are the fire hazards of manganese and its more common compounds? How should fires involving compounds of manganese be handled?

K. G. M.

Answer: Manganese is an ore mined in the State of Georgia but mainly imported from Russia, India and Brazil. As an alloy, it is extensively used in making steel. In itself, manganese is not hazardous. In finely divided form it can constitute a fire hazard. Chronic exposure of the eyes to manganese can cause retinal edema. Although poisoning due to manganese in industry is rare, it can have some harmful effects upon the body. It is probable that certain of the more reactive manganese compounds do constitute lung irritants, especially in the finely divided state.

Manganese dioxide is an amorphous powder or crystals. By itself it presents no fire hazard.

Manganese lead resinate is a mixture of lead and lead resinate. It is used in varnish and oil driers and is a dangerous fire hazard. It is toxic.

Manganese resinate is a dark mass used in varnish and driers and is a dangerous fire hazard. It can be toxic.

In powdered form manganese should be stored away from areas of acute fire hazard and powerful oxidizing agents. To fight fires in this material, use calcium carbonate to smother. Do not use water, foam, carbon tetrachloride or carbon dioxide.

Manganese lead resinate should be stored in a cool, well ventilated place away from areas of acute fire hazard or open flame. Containers should be kept closed and plainly labeled. Accurate information on extinguishing agents are lacking.

Manganese resinate should be stored in a cool, well ventilated place away from areas of acute fire hazard. Containers should be kept closed and plainly labeled. Water is an effective extinguishing agent.

Drafting Hot Water

To the Editor:

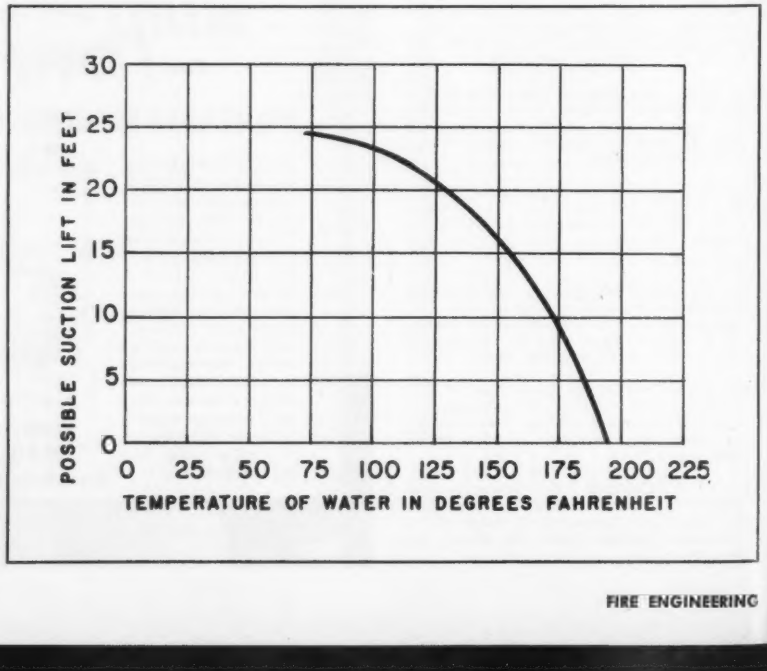
Is it possible to draft hot water without first introducing cold water from a hydrant into the pump? If not, at what temperatures does water become difficult to draft?

J. W.

Answer: On Page 27 of "Fire Service Hydraulics" by Fred Shepperd, reference is made to the difficulty of drafting hot water. It is stated, "This is because of the tendency of hot water, when put under a vacuum, to throw off water vapor, thus destroying or greatly reducing the ability of the pump to create a vacuum necessary for raising water."

As soon as the cold water is expelled from the pump, the vaporizing action would begin and loss of prime would result.

It is not possible to answer the second



question as posed, since the lift must be taken into account. On the preceding page is a chart from "Fire Protection Year Book 1957," published by *Fire Protection Review*, Benn Brothers Limited, London, which will throw further light on the question. □□

World-Wide Fire News

Firemen in the Olympics

Fire fighters helped "carry the torch" during the recent Olympic ceremonies. A fire engine and crew followed the chain of runners who carried the Olympic torch on its 2,750-mile trip from Cairns, North Queensland, to Melbourne, Australia, to make sure that the flame didn't start forest fires. The torch was flown to Cairns from Athens, where the trip originated.

Fire Takes Hot Bath at Olympics

It is disclosed that women athletes were left without "sauna" steam shower facilities November 26, after fire damaged a unit in the Olympic village, Melbourne, Australia. Dense smoke and steam poured from the timber building for more than an hour and a half.

The fire burned out part of the ceiling and the roof. It was the second fire since the sauna, an extremely dry and hot steam bath, popular in Finland, was built.

Anti-Aircraft

A champion skeet shooter of Michigan recently started the engine of his airplane without realizing the throttle was wide open. The engine roared and the pilotless plane raced down the runway and took off.

While the plane flew around the field the chagrined pilot grabbed a deer rifle and fired eight shots into the motor. The plane crashed and burned, a total loss.

From the World News Ticker

Nine persons, including six children, were killed November 16 last, by a fireworks explosion in the Barrio Ingles, or English district of Bogota, Colombia. The blast razed three workers' homes and was caused, police say, when powder being used for making fireworks for Christmas and the New Year's holidays, was touched off. . . . Asked by magistrates of Wolverhampton, England, why he threw matches into a timber yard, an 11-year-old boy replied, "That's the best place to start a fire. There's plenty of wood there." . . . Hong Kong fireboats went out 50 miles from the British Colony to help fight fire in the Norwegian freighter "Ala," bound from Swatow to Hong Kong. Two-day fire destroyed vessel. U. S. destroyers "Buck" and "Loftberg" rescued the captain and 32-man crew. . . .

1. Carry them by hand right up to the fire...operate power tools and lights.

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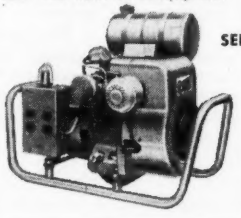

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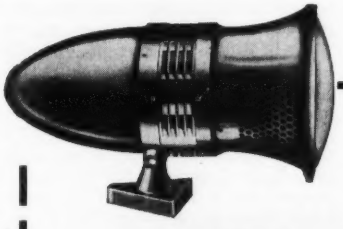

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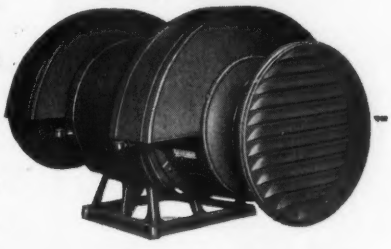

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Speaking of Hong Kong, the only licensed firecracker factory in that city blew up December 9th injuring seven persons. One woman was missing. . . . When fire destroyed a farm at Marketweighton, England, 400 turkeys being fattened for Christmas were prematurely roasted. . . . Two Coast Guard cutters, one from New York and another from Bermuda sped to the aid of the U. S. freighter "San Mateo Victory," 7,623 tons, about 350 miles northeast of Bermuda, to aid the 30-man crew in fighting a fire aboard the ship. A plane circled the craft during operations. . . . Ferdinand Ladoux, 70, Beauvais, France, was an indirect victim of the French-British military action against Egypt. Worried that the conflict would cause a gasoline shortage, he hoarded the fuel in his cellar. He went to the basement to check his supplies and the flame of his candle touched off an explosion that killed him. . . . A Civil Defense test of the air raid sirens of Phoenix, Ariz., touched off a wave of telephone calls to fire, police and newspaper switchboards from persons who thought the outcry meant war. Some callers believed Russia had invaded Egypt. Phone operators had a busy half-hour denying rumors. . . . On December 14 firemen of Blackpool, England, extinguished a stubborn fire that threatened to sweep Blackpool's 518-foot high amusement tower, one of Britain's most famous landmarks. . . . Ten migratory farm workers died December 13 in a truck collision near Victoria de Santo Antao in northeast Brazil. The truck carrying the workers hit another loaded with gasoline. Thirty workers were injured. . . . On November 29 fire razed about 200 squatter huts on a Hong Kong hillside killing one Chinese woman, leaving some 1,600 homeless. . . . In Kobe, Japan, firemen on November 24 last rushed to a truck which was burning on the street—to find it was loaded with fire extinguishers. . . . Three children burned to death and 17 persons were injured on November 19 in Santiago, Chile, when fire destroyed 142 wood and corrugated iron shacks in which they lived. About 2,000 were made homeless.

THE ROUND TABLE

Continued from page 52

mains and hydrants installed during construction. This covered a policy of the city when constructors petitioned the city for water supply.

I would not be in favor of spacing hydrants more than 1,000 feet apart on straight-away streets, and certainly would recommend installation of at least one hydrant on a street of lesser length.

David Zuidmulder, Chief, Green Bay, Wis.: I maintain that 500 feet is the right spacing for residential hydrants. With such a spacing and a good main pressure, we find that most residential fires can be extinguished. More time is saved in stretching and picking up hose lines. With a layout of 1,000 feet and a poor main pressure, it would be necessary to connect a pumper to the hydrant to get enough pressure at the nozzle.

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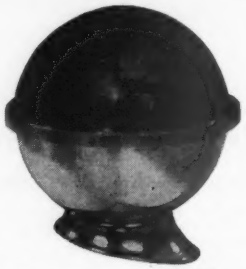

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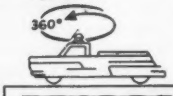

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NEW JERSEY

of getting our hydrants at a 500-foot span, then I would be satisfied with the greater spacing, but in the meantime, I would attempt to see that hydrant spacing is down to 500 feet.

George L. Gittings, Chief, Brookline, Mass.: I believe that hydrants should not be spaced more than 1,000 feet apart, and in some cases especially in areas where there are apartment houses or large dwellings, this spacing should be less.

Ray Fraker, Chief, Springfield, Mo.: I believe the nominal 1,000-foot spacing of hydrants is adequate for residential fire fighting. I would not be in favor of allowing spacing up to 2,000 feet.

The following replies are in answer to a previous question on closed vs. open fire apparatus.

John J. Farrell, Battalion Chief, Oakland, Cal.: All Oakland Fire Department apparatus is of the open type. Chiefs and operators use passenger cars.

In our past accidents, we have found that men have been knocked off the apparatus due to the impact of the collision. This might not have happened if they were in enclosed cab.

The officers seem to prefer the open apparatus for operations at fires, as they have greater visibility for spotting, etc.

Steve Taylor, Chief, Boise, Ida.: We find personnel injury frequency to be greater when members ride the side running board or rear step than when inside a cab.

We do not note any difference in illness frequency as our climate is mild and the runs are short.

We have not had any accidents with cab-over-engine type of apparatus, and we find that the visibility is better and there is an advantage in spotting.

Dean B. Muhlestein, Chief, Provo, Utah: Practically all our apparatus is of the enclosed cab type. Personnel injury frequency is greater when members ride the side running board or rear step than when they ride inside the cab.

We have one cab forward of engine truck. We notice no difference between it and the other type of truck.

Harry W. Marr, Chief, Portland, Me.: Due to the fact that we have been fortunate in not having had an accident involving injury to our personnel for a number of years now, and since the only piece of apparatus we have with an enclosed cab has been in service for about 16 months, we are unable to make a comparison.

James Sibert, Assistant Chief, Great Falls, Mont.: All our apparatus with the exception of one tank truck and our aerial are equipped with three-men cabs. Our members ride rear step if not in cab.

A comparison of years past when we had open cabs would indicate that we have less sick leaves with the enclosed apparatus.

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No. B-100

COMPARE THESE ADVANTAGES

- Compact — only 5½" overall length.
- Full water way.
- Removable neoprene seat for easy and quick change. Eliminates costly repairs.
- Automatically locks in open or closed position.
- Lighter in weight — only 8½ pounds.
- Handles with plastic balls for easy gripping and operating.

Sizes: 2½ x 1½ x 1½ — 1½ x 1½ x 1½

Be sure of best and finest. Specify Elkhart B-100 on your next requirement.

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ELKHART INDIANA

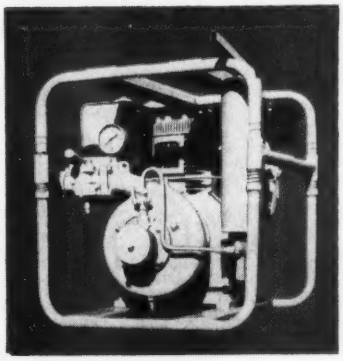
Fight Brush Fires From Moving Truck with a Hale Type FZZ

PORTABLE PUMPING UNIT!

Picture below shows fire-fighter handling stream from a Hale Type FZZ Portable Pumping Unit mounted on a moving truck. An FZZ can be mounted permanently on truck or carried as a portable unit for pumping into or *from* booster tank. This portable arrangement is extremely useful both for fighting brush, field or forest fires while in motion; or for pumping from pond, stream or well direct.

An FZZ will supply from draft 2 capable fire streams thru 1½" lines. Performance substantially exceeds NBFU and NFPA capacity and pressure requirements.

A frame-mounted FZZ (with carrying handles turned in) is pictured at right. Also available mounted on two wheels or on rubber-cushioned steel channels. **Note:** Discharge Adapter can be supplied for use with 2½-inch hose.



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Fire Pumps in All Standard Capacities

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FZZ Now Has NEW—

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- **Mechanical Seal**
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Each size adjustable down to 1" to fit all pentagons. Made in 16" and 20" handles. Also available in non-adjustable square and hexagon heads, please give exact size required.

16" and 20" Handles

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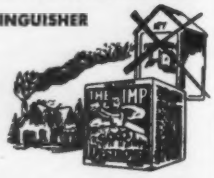
CHIMNEY FIRE EXTINGUISHER



Save rushing to chimney fires—avoid slippery roofs by using IMP Chimney Fire Extinguisher. Just throw a 65¢ package "as is" on the hottest part of the fire in the stove, furnace or fireplace. The chimney fire will be out in jigtime without water or chemical damage. Recommended by many chiefs who carry IMP in their cars. ALSO —LIQUID IMP for *oil fired units*, is as much a fire preventative as pkg. IMP. Saves oil, money, increases heat, prevents sludge, reduces carbon deposits and is safe. You know what a fire hazard sludge is. Use LIQUID IMP in your own burners. 3½ oz. enough for 90 gals. kerosene or 55 gals. No. 2 fuel oil; 16 oz. enough for 5 times above quanity; 1 gal. enough for 1600 gals. #2 fuel.

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I will honor your bill f.o.b. Bridgeport,

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FIRE EQUIPMENT DISTRIBUTORS ATTENTION!
Add package and Liquid IMP to your line.
Write TODAY for special distributor Plan.

HOSE RECOUPLING

Continued from page 43

its required pressure. With hydraulic machines equipped with a pressure guage, this pressure will vary from 75 psi for ¾-inch to near 600 psi for 4-inch hose, depending upon the wall thickness of the brass ring. With experience, one can determine by visual inspection when a ring is properly expanded. Encircle the hose with a pencil or chalk line immediately behind the coupling. This line will serve as a check against hose and coupling separation during the pressure test.

9. Prepare the recoupled hose for a pressure test by first bleeding all the air out of the hose, before closing the nozzle. There is a definite safety factor involved here, as air will compress under pressure. With the air removed, the burst will be less violent should the hose fail to withstand the pressure required by department standards.

10. Maintain the pressure test for at least three minutes. Experience has proven that a leak frequently will not show for the first several minutes of the test.

Should a leak develop at the tail end of the hose bowl, and the pencil or chalk line has not moved away from the coupling, discontinue the test. At this point a recoupling job can be prevented by applying a few more pounds expanding pressure to the ring, followed by another test. When the pencil or chalk line has moved away from the coupling during the test, the hose has slipped within the hose bowl. The coupling must be cut off the hose and reattached. For safety and dependability during service, the recoupled hose must withstand the required pressure test, without leaking at the coupling, or slipping within the hose bowl. The wall thickness of the hose bowl must be sturdy enough to endure the internal pressure created by the expander, without stretching the metal.

Problems may arise, due to the fact that coupling dimensions are not standard. The depth of the hose bowl and the outside diameter of the hose bowl gasket seat must be measured, because correct fitting rings and gaskets must be used.

The National Fire Protection Association, in June 1956, adopted standards for coupling gaskets and gasket seats. These standards are printed in the NFPA pamphlet No. 194. It is hoped that hose bowl gaskets and gasket seats will also be standardized. □□

What Is "Official" Business?

The fire chief of Pleasant Valley, N. Y., was recently ticketed for speeding by a state trooper while answering an alarm of fire. State police said the fact that the chief's siren and red blinker were operating didn't matter. They pointed out that the chief was driving his own car and therefore not an "emergency vehicle." The chief contended it was still official business.

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Book Shelf

THE ROMANCE OF FIREFIGHTING, *by Dr. Robert S. Holzman. Published by Harper & Bros., 49 East 33rd Street, New York 16, N. Y.; 209 pages with over 300 illustrations; 8 pages of color. Approximately 9 x 12; price $7.50.*

The book is a pictorial history of American fire fighting from colonial days to the present. The author's vivid commentary brings to life a colorful bit of Americana from the woodcuts, lithographs, paintings and prints, including full-color Currier & Ives scenes.

FIRE PROTECTION YEAR BOOK, 1957; *Published by Fire Protection Review, Benn Brothers Limited, Bouverie House, Fleet Street, London, EC4; 456 pages and hard cover, approximately 4¾ x 7 inches; price $2.10.*

The 17th edition of the year book described as the "Fire Fighters International Encyclopedia," contains directories of public fire services in the British Empire and Commonwealth, industrial brigades in the British Isles, equipment suppliers, Civil Defense and military organizations, and institutes and societies pertaining to fire prevention or control. Sections are devoted to laws relating to fire in the British Isles, hydraulic tables and other data, and a glossary of terms.

NATIONAL ELECTRICAL CODE, 1956; *Published by National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass. 7¼ x 4¾ inches, 480 pages and paper cover; price $1.00.*

The new edition of the code is revised from the 1953 code and contains all interim amendments adopted since publication of the earlier edition. The code also appears in Volume V of the 1956 National Fire Codes.

Snake Matches a Hazard

Captain Joseph P. Treacy, head of the Yonkers, New York, Fire Department's Fire Prevention Bureau, warned residents of that city against so-called "snake matches" and "snowflake matches" which were being sold under the label, "Fun-Packed Toys."

According to the captain they are dangerous for children. He cited a recent case when a pack ignited in a school classroom.

The front half of the match pack, he said, contains matches which when lit, bend or twist like a snake.

N. Y. Fire Chief Test Planned for April

Competitive examinations for the post of Chief of Department, New York Fire Department have been tentatively scheduled for April 1957.

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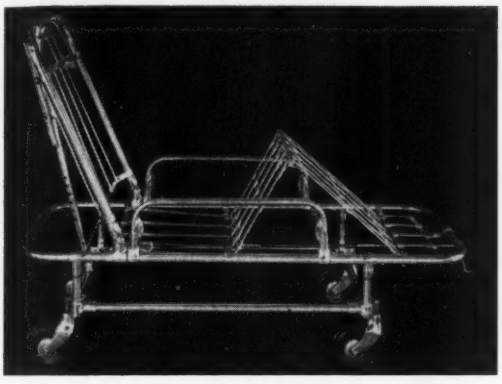
COT & STRETCHER EQUIPMENT TO FIT ANY VEHICLE.

OR FOR ANY FIRST AID ROOM REQUIREMENTS.



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HIGH PRESSURE—Use one or two hard-hitting streams or fire-blanketing fog-spray

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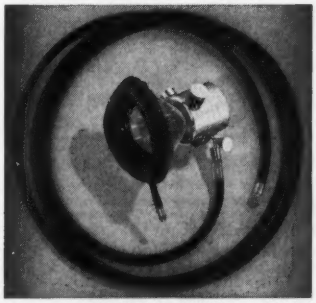

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Complete, independent resuscitation-inhalation treatment for two- or three-patient emergencies. Write for details.

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Annual Reports

Manila Fire Prevention Pamphlet

Fire Prevention Week in the Philippine Islands was held March 1-7, 1956. As in the past, the Manila Fire Department prepared an interesting booklet. Chief Cruz has adapted from the United States much factual data and pictures dealing with fire hazards and fire prevention.

Clifton, N. J., '55 Report

Chief Engineer John Zanet of the Clifton, N. J., Fire Department reports 756 alarms with a loss total of $283,790 for the year 1955. Contracts were let during this period for the installation of radio in all vehicles. The Chief recommends a new headquarters building to adjoin the present alarm office.

Everett, Wash. Alarms Up, Losses Down

Fire Chief F. F. Schroeder reported that alarms of fire had climbed to 809 but that losses were cut 33 per cent to $50,123 in the year 1955. This represents a per capita loss of $1.32. The use of fire radio has resulted in an increase of in-service time by 77 hours. The department conducts a 15-minute fire prevention program every other week on the local radio station sponsored by the V.F.W. post.

Leicester, U. K. has Recruiting Problems

Chief Fire Officer Errington McKinnell, O.B.E., M.I., F.E., reported that 1,738 fires for the year 1955 represented an increase of 13 per cent over the previous year. Malicious false alarms accounted for 66 responses.

Chief McKinnell's comments on the manpower situation are interesting. He states, "The recent introduction of a shorter working week, the payment for overtime and a pay increase may help the recruiting position."

Oregon Reports Fires Down, Losses Up

The very comprehensive annual report of the Oregon State Fire Marshal, Robert B. Taylor, discloses the fact that there were 832 fewer fires in 1955 than in the previous year, nevertheless losses increased over a $1,000,000 to a total of $11,414,400. Also, notwithstanding the fewer fires, the death rate increased 42 per cent.

New Haven, Conn., Losses Down

In his annual report for the year 1955 Chief Thomas J. Collins records 2,694 alarms answered, an increase of more than seven per cent over the previous year, nevertheless losses were down nearly 40 per cent. The well prepared and printed report includes a detailed account of the department's activities during the 1955 floods and the results of the 39,219 inspections made during the year.

Railroads Report Losses for 1955

The year 1955 was a record high in fire losses for the railroads of this county, according to the Association of American Railroads. The total of $13,050,970 represented the greatest amount since loss records were started some 32 years ago. The 5,687 fires reported approximate the annual average, but the losses were nearly one million dollars greater than in 1954 and twice the 32-year average.

Unknown causes accounted for over 1,000 of the fires and nearly three million dollars of the losses. Cotton fires accounted for only 5.8% of the fires but

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1½"x50' SJ CRL fire hose	$. 40 ft. cpld.
2½"x10' hard suction hose	14.50 lg. cpld.
¼" or 1"x50' Booster hose	.30 ft. cpld.
4"x16' DJ soft suction hose, w/4½" cplgs. male & long handle female	16.50 lg. cpld.
Mechanical foam playpipes, Phomaire, less pickup tube (Worth $45.00)	8.00 ea.
Mechanical foam playpipes, Phomaire, complete with pickup tube (Worth $55.00). Our price only	15.00 ea.
2½" Siamese connections, plain, 1 male and 2 female, NST	4.75 ea.
2½" Brass double female connections, NST	5.95 ea.
1½"x12" Plain hose nozzles, brass, IPT	1.25 ea.
2½"x15" Plain hose nozzles, brass, NST	4.25 ea.
1½" Fog nozzles, brass 3 position, leading brands, NST or IPT	29.50 ea.

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Briarcliff Manor, N. Y.

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1952 International L-185, 500 Gal. Hale 2-stage pump, 500 gal. tank, 1,700 ft. hose, Hale FZZ portable, 1,000 Watt Generator, more than fully equipped. Original cost $18,000. Privately owned. Priced for quick sale. $12,500. Must act fast. Bargain offer, new International Panel Emergency truck, fully equipped if taken with above. Both trucks and equipment almost new.
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ONLY $.55 Ft. cpld.
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SHUT-OFF NOZZLE and PLAYPIPE
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Fig. 156

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2000-foot beam
Most powerful, heavy-duty hand lamp of its size. Adjustable 6-inch head. Operates on four standard No. 6 dry cells.

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Popular price, light weight, easy to carry. Adjustable 5-inch head. Holds two standard 6-volt lantern batteries. Operates on one; other is a spare.
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nearly two million dollars of fire damage. Overheated bearings or "hot boxes" were the second most frequent cause of fire, but damage from such fires was slightly over $600,000 for fifth place in the loss figures.

Charlotte, N. C., Fire Average $794

Chief Donald S. Charles of the Charlotte Fire Department reports losses of $614,868 for the year 1955. A total of 2,453 alarms were answered of which 350 were false. The average loss for the 773 building fires amounted to $794 per structure. Chief Charles recommends new stations in the northwestern area of the city; also enlargement of stations 7 and 4; more personnel; and larger quarters for the Mechanical Repair and Woodworking Divisions. More office space is also needed at headquarters and the chief also urges establishment of a 60-hour week to replace the present 72-hour schedule.

Hayward, Cal., Report Asks F. D. Improvements

The well detailed report of Fire Chief Matthew Jimenez for the fiscal year ending June 30, 1956, recommends relocation of the present headquarters, location of a new engine company in the vicinity of the airport and planning for the coverage of newly annexed or developed areas of the community. Losses were up 62% but the loss per capita amounted to $1.57.

PUMPER-TANKER

Continued from page 46

baffled into five compartments and has a 10-inch filler opening near the front top. A 4-inch overflow provides relief when filling and is piped in such a manner that there is no loss while in motion.

Pre-connected hose lines consist of two 1-inch booster lines, each 150 feet in length; four 1½-inch lines, each 100-feet long, and two 2½-inch, 100-foot lines. All hand lines are equipped with fog nozzles. In addition, 1600 feet of 2½-inch hose is carried in the hose bed. A 600 gpm deck gun is mounted over the pump and directly connected to it by a 3-inch pipe with gate valve.

According to Chief Higgins, the ability to hit the fire quickly with such a volume has resulted in 99 per cent of the fires attacked by this unit being extinguished before other companies were able to stretch in and put water on the fire. With all nine pre-connected hose lines in operation, the discharge total is 1225 gpm; two minutes of operation are possible under these conditions. With only one booster line in operation, it requires one hour and 23 minutes to empty the tank.

The "giant" carries all conventional pumper equipment together with various other facilities in the generous compartment space available. Before acceptance, the unit was required to meet all Underwriters' tests. Big as it is, the vehicle reportedly operates handily and has a turning radius permitting it to make a complete circle in 62 feet.

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PORTABLE ELECTRIC POWER

Model BHA15L Lightweight 1800 Watt Unit on Skid
For floodlighting, radio, pumps, blowers, rescue apparatus . . . dependable emergency power *when and where you need it* with Pioneer, light weight portable generators.
Pioneer generators require little space, are ruggedly constructed. Models **BHA-20L,** 2300 Watts, and **WHA-25L,** 2800 Watts, skid mounted as above for easy handling.
WRITE TODAY for new catalog and prices on 250 to 3600 watt units designed for Fire Department use.

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HOW THE *Pacemaker* GRAPHIC® 45 CAN SERVE YOUR DEPARTMENT

AT THE SCENE OF THE FIRE — A member of your department equipped with a Pacemaker Graphic and trained in the skills of firefighting can be a helpful asset in improving the efficiency of your department. Photographs taken on the spot can be examined for the correct deployment of equipment and for studying employment of various firefighting techniques.

TRAINING — Photographs are an invaluable aid in training recruits and in refresher courses in firefighting methods. Large equipment and its component parts can be shown photographically — in large size — for classroom demonstrations and exhibits.

DEMONSTRATION OF EQUIPMENT — Manufacturers' demonstrations of new equipment and comparative performances can be photographed to aid in determining choice of the best equipment for your department. These photographs can also be used for classroom demonstration.

FIRE PREVENTION — Photographs of existing fire hazards help in the prevention of fires. They present a visible record that the danger of fire exists, and follow-up photographs indicate if the proper corrective action was undertaken.

SUSPECTED ARSON — Good photographs play an important part in the apprehension of arsonists. When presented to juries they stand up in courts of law as undeniable evidence.

DEPARTMENTAL ACTIVITIES — There's an unlimited use for photographs in all your departmental activities. Graduation exercises, sports events, firemen's fund raising activities are only a few of the ways photography can benefit your department.

ONLY PACEMAKER SPEED GRAPHIC HAS THESE VERSATILE, EASY-TO-USE FEATURES!

• Graphic Rangefinder with built-in Rangelite • Shutter Speeds to 1/1000 second • Interchangeable Lenses • Double Extension Bellows for extreme closeups • Rising, Shifting, Tilting Front • Graflok Back for using sheet film, film packs, glass plates, 120 size roll film, or Polaroid film attachments.

GRAFLEX® *Prize-Winning Cameras*

For further information see your local Graflex Dealer or write Dept. FE-17.

GRAFLEX, INC., ROCHESTER 8, N. Y.

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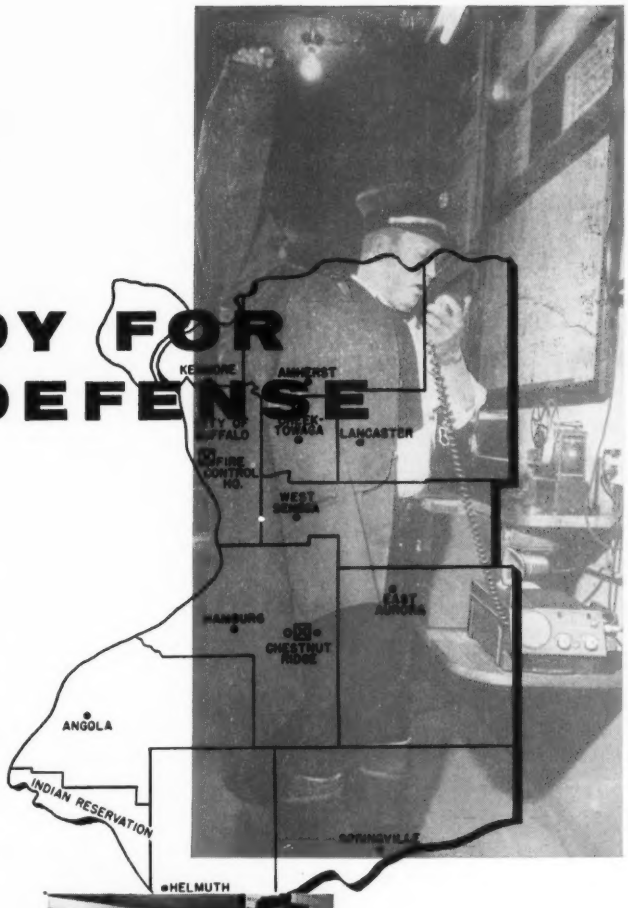
ERIE COUNTY FIRE RADIO SYSTEM...

READY FOR CIVIL DEFENSE



ENTIRE BUFFALO N. Y. AREA NOW PROTECTED WITH INTEGRATED COMMUNICATIONS

THE PROBLEM: Coordinating the activities of 96 volunteer fire companies with those of the City of Buffalo fire department for fire-fighting, Civil Defense and other emergencies.

THE ANSWER: Only a custom engineered two-way radio system could handle it. The Federal Civil Defense Administration approved the Erie County CD Communications project. After lengthy engineering study and exhaustive performance tests, Motorola equipment was chosen for the entire communications network.

In and working now, the county volunteer radio system normally functions separately from the city system. The county system has 10 base stations—each controlling the volunteer fire trucks in a certain area. In emergencies, the main Motorola radio control center takes over, and—with fingertip control—can integrate both systems . . . combining the efforts of *every* fire-fighting unit in Erie County, *in minutes.*

With fire protection greatly increased and a Civil Defense network on call 24 hours a day, the Buffalo area sleeps easier these nights. Talk over *your* needs with a Motorola Communications Engineer. He's ready to discuss complete details of CD radio systems and FCDA certified equipments. Write, phone or wire Motorola today.

Base station (one of 10) calls volunteer co's.—controls and coordinates their activities.

Receiver in station house operates siren when call comes in. Radio on truck keeps constant contact—to, from and at fire.

MOTOROLA

2-WAY RADIO

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.
A SUBSIDIARY OF MOTOROLA, INC.
4501 AUGUSTA BOULEVARD • CHICAGO 51, ILLINOIS

Motorola consistently supplies more mobile and portable radio than all others combined.
Proof of acceptance, experience and quality.
The only COMPLETE radio communications service—specialized engineering...product...customer service...parts...installation...maintenance...finance...lease.
"The best costs less—specify Motorola."

39 models—and all have Four Wheel Drive control

No matter what particular type of unit you add to your department, you'll find it in the full line of FWD equipment, with all the "get-there" safety of Four Wheel Drive control!

This full-line experience helps FWD build better fire-fighting equipment. And, FWD has been building diversified fire apparatus for 42 years!

Every FWD unit has the balanced power and weight distribution and powered front axle that gives unmatched controllable traction for emergency conditions. It's the finest and safest fire protection you can give your community!

No matter what your equipment needs are, you'll find the best answer in the famous FWD line—with Four Wheel Drive control!

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Builders of America's finest and safest fire apparatus

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